

MINISTRY OF RECONSTRUCTION.

SUMMARIES OF EVIDENCE

TAKEN BEFORE THE

AGRICULTURAL POLICY SUB-COMMITTEE

OF THE

RECONSTRUCTION COMMITTEE.

APPOINTED IN AUGUST, 1916,

TO CONSIDER AND REPORT UPON THE METHODS OF EFFECTING AN INCREASE IN THE HOME-GROWN FOOD SUPPLIES, HAVING REGARD TO THE NEED OF SUCH INCREASE IN THE INTERESTS OF NATIONAL SECURITY.

Presented to Parliament by Command of His Majesty.



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RECONSTRUCTION COMMITTEE.

SUMMARIES OF EVIDENCE

TAKEN BEFORE THE

AGRICULTURAL POLICY SUB-COMMITTEE.

1st Day, 10th October, 1916.

THE RT. HON. THE EARL OF CRAWFORD AND BALCARRES.

(President of the Board of Agriculture and Fisheries.)

1. Lord Crawford explained at the outset that his evidence must not be taken as representing the settled views of the Board of Agriculture and Fisheries but simply as a statement of his own personal opinions.

2. He stated that the possibility of increasing the production of cereals without reducing the output of meat and milk is generally admitted, and he referred to the figures of German production as the best illustration of this point. The fact that nearly four million acres of arable land in England and Wales had gone down to grass since the early 'seventies was clear evidence that more tillage was practicable. In his opinion, however, the greatest caution and the greatest reserve must be exercised in considering a ploughing-up policy; it is a "restoration" in agriculture, not a "revolution," which will have the support of the public. In this connection he referred to the time of the Crimean War, during which, for economic reasons, there was a rush to plough up grass land, with results which were disastrous to husbandry. On the other hand, it was generally agreed that there was no industry in the country at the present time with greater power of expansion, and he was satisfied that a substantial increase in the production of home-grown foodstuffs could be attained.

3. Lord Crawford thought it advisable to increase the proportion of cultivated land devoted to arable cultivation for various reasons. Public opinion, he said, is, as a whole, favourable to anything which will strengthen our national security, develop our natural resources and prevent waste. The intensification of husbandry will help to attract new labourers and to retain the old ones. For social and economic reasons a balance between town and country is desirable. Improved agriculture will also assist the settlement of ex-service men on the land, reduce our dependence on foreign supplies, and help the rate of exchange. Asked what he considered the kind of grass most suitable for ploughing up, his Lordship replied that in his opinion the grass land which used to produce wheat was the worst grass now, and that that was the land which could again grow good wheat if broken up. He was strongly opposed to the breaking up of grass simply because it was grass, stating that really good grass land was one of the most precious things we possess, that moderate grass was a valuable thing, and that grass as such was an asset which must not be lightly or hastily brushed aside. He agreed, however, with Mr. Hall that each area would have to be judged on its merits. Lord Crawford was confident that a policy such as he had discussed would be well received by the people of this country, who are now realising that their food supply is running short, and he considered this fact to be the great basis upon which a new agricultural policy can and will be built.

4. Lord Crawford expressed the opinion that, in order to obtain a large increase in the agricultural output, some form of security was essential, otherwise the necessary capital and enterprise will not be forthcoming. Farmers will incur no needless risks. How to establish such a stability, however, raises acute political problems such as bounties, duties or guarantees. In his opinion, one form or another of security must be provided, and a guarantee of price is probably the least open to objection. For years agriculture has been depressed and kept under depression for what, he would call, the benefit of the urban population. Agriculture has been justified in being nervous and apprehensive of the future, and that sense of timidity will not be dispelled unless and until the State is prepared to come forward and guarantee that agriculture shall not continue as in the past. The farmer, remembering the low price which prevailed only a few years ago (less than 28s. for wheat, and less than 15s. for oats), is not going to risk his capital without greater security than he now possesses. But increased capital outlay, both by owners and tenants, was essential on houses, horses, implements, drainage, buildings and a variety of items, before a very large increase in production could be expected.

5. With regard to the minimum guarantee, which he had advocated, his Lordship said that the guarantee should not be paid for wheat because it was wheat, but for wheat which is up to the average standard, and this could be secured by leaving each farmer to sell his own produce, and paying him the difference between the State guarantee and the Gazette average price, whatever price he himself may have realised. He said that he approached the question, in the first instance, from the point of view of national security, not that of profit to the farmer. He thought that it might be necessary to extend the guarantee to oats and barley, on account of the large quantity of oats grown in Scotland and Ireland. Lord Crawford was unwilling to suggest a definite figure at which the guarantee should be fixed, but said that it would not need to be a very high one. He was not sure, however, that 40s. would be sufficient to induce farmers to change rotations, or break up middle class grass land, but had a guarantee been granted before the war, and had half the required area been successfully broken up and cultivated, the position of Great Britain to-day would be without anxiety, whereas the position at the moment gave more cause for anxiety on the question of the food supply than ever before during the war. Asked whether the establishment of Land Comis would not be a logical outcome of the policy to give a minimum guaranteed price, the witness said that it might seem to be logical corollary of the policy he had advocated, but it would defeat its primary object, the increased production of food.

6. On the subject of the proposed guarantee, in cross-examination by different members of the Sub-Committee, Lord Crawford stated that he would not favour a varying amount, it should be uniform for all farmers, and permanent, that is, it should be a figure fixed by Act of Parliament, and not subject to yearly revision. He agreed that wheat yielded a profit to the farmer who were growing it before the War, and therefore any payments to these farmers under the State guarantee, would represent an increased profit, except in so far as this amount was reduced by the additional wages to agricultural labourers. No doubt the added profits might tend towards an ultimate increase of rents, but he did not regard the fact that some farmers would obtain increased profits and that some owners would receive increased rents as a conclusive argument against the proposals, although it would probably interest politicians more than the whole question of production. He could not accept the view suggested by Sir Matthew Wallace that in order to secure an area of wheat equal to that which was cropped with wheat in the 'seventies it would be necessary to offer a price not less than that which prevailed at that time, in view of the changes which had been effected in the cultivation of wheat, varieties, cost of production, &c. With regard to the crops for which a guarantee should be given Lord Crawford saw no reason why it should not be granted for the three standard cereal crops. Dairy farmers and graziers would claim that, if they were obliged to pay increased wages, their industries should also be given equal security with the corn grower, and it might become necessary to grant them some collateral assistance. On the other hand, meat and milk were not subject to the same competition as the cereals, and grass farmers would obtain some indirect benefit from a State guarantee for cereals. Moreover, it would be quite possible for them, without reducing the output of their present produce, to break up some of their grass, grow corn, and thus obtain direct benefit from the guarantee.

7. Questioned as to the advisability of compulsory powers being given to the State in order to ensure that the best economic use is made of all cultivable land, Lord Crawford replied that it was advisable that changes should be effected with caution and reserve. There would have to be a period of transition, during which no compulsion would be applied. If the guarantee is adequate to effect a large increase of tillage, compulsion will not be required; and in any case the State will be unable to exert complete control until it is itself prepared to replace those who now occupy agricultural land. The land of this country has to be cultivated by the farmers who are on it, and worked by the labourers who are on it. It could only be farmed through the existing organisation, the existing tenants, the existing owners, and the existing labourers. It was desirable to encourage these, to supplement, to assist, and, if necessary, to guarantee, but once the State sets out to replace them, such a feeling of uncertainty and even panic will be created, that the whole scheme would fail. The policy should aim at coaxing more capital into the agricultural industry and this could not be done by threats of confiscation. His Lordship thought that at the outset of the new policy there would be plenty to do without exercising compulsion; and, though he was not opposed to a word of warning being spoken, indicating the possibility of force being used after an interval, he considered that anyone investigating the matter would realise that it would be several years before the State would be in a position to take compulsory measures. He thought that the farmer would in all probability do what was required of him from a desire for the national welfare, and what should be propagated was a sense of security, not fear; the object should be to encourage, not to penalise. Force in the case of farming meant either the State taking over the farm and managing it itself, or a system of fixing in respect of a particular area of land—some form of penal taxation. In any case, the necessity of paying an increased wage would act as a stimulus to increased production. While he admitted that his views on this aspect of the question were cautious, he reminded members that many people would think them revolutionary.

8. Lord Crawford said that if a guarantee is granted for produce, a standard wage must also be provided for labour; the security given to agriculture must be bilateral, though he admitted that the establishment of such a wage in respect of agricultural labour is one of the most difficult problems with which the Government can be faced. Referring to industries in which legislation on wages had already been passed, his Lordship pointed out that there was no analogy between agriculture and coal mining, the latter industry in which employers and workmen were both well organised, and in which the number of employers were exceedingly few, not being affected by imports; all of these conditions were reversed in the case of agriculture. The witness thought that

the standard wage (which should be based on a standard time-rate, not on piece-rates) would be at a level materially higher than the average wage of the last five years, and governed to a large extent by the fact that the State was giving a guaranteed price for wheat. He considered that not only would a minimum wage keep agricultural labourers on the land, but would be essential if, on demobilisation, ex-service men are to be attracted to an agricultural life. With regard to the means by which the minimum wage should be established, Lord Crawford agreed that it must be determined by Wages Boards in different districts, and he thought that the figure would have to vary in different counties, and even, perhaps, in different parts of a county. He did not think it would be possible for the State to fix piece-rates for agriculture, owing to the complicated nature of the industry.

9. In reply to a question on the setting up of industrial farms, Lord Crawford said that he was rather sceptical of the proposal that the State should purchase two or three farms of 10,000 acres each, with a view to showing that farming on a large scale would pay. He doubted if Parliament would ever sanction such a proposal, and thought that the State enterprise would prove disappointing. He was, however, in favour of demonstrations on a smaller scale and instanced the work being done by the Illustration farm in Canada. This, he said, was a particular farm, worked by a particular occupier, selected in a particular area, upon which the advice of the expert was centralised, and all the farmers in the neighbourhood watched the process of experiment on the holding of one of their own neighbours. The man who worked the Illustration farm was paid a little for expenditure on experiments which were outside the area of the normal cropping system; so he was not out of pocket over it. He consented *per contra* to follow expert advice, and he derived no profit other than the profit which he could legitimately draw from his improved crop. Lord Crawford stated that the result of this system in Canada had been so remarkable that the Canadian Government had decided to extend the principle of the Illustration farm to an Illustration county. That may be an area of 10-20 miles square in which every farm was worked on the Illustration farm principle, every road laid out according to Illustration road methods, and every school run on Illustration school lines. Lord Crawford was in favour of demonstration farms being managed by the county rather than by the State. He considered that on grounds of accessibility and for other reasons, the farmer would pay more attention to a local scheme.

10. With regard to the provision of cottages for agricultural labourers, Lord Crawford stated that at the beginning of the War £1,500,000 was in process of acceptance by the Local Authorities for the purpose of housing. Both the Local Government Board and the Board of Agriculture were conscious of the great need for more cottages in rural districts. His Lordship agreed that a revival in agriculture was impossible without proper accommodation for agricultural labourers, and considered that security for agriculture as a whole was a good foundation on which to build a successful rural housing policy. The price of money would be one of the chief hindrances to the erection of cottages after the War.

11. Lord Crawford agreed with Captain Bathurst and Mr. Haviland that tenant farmers often occupied more land than their capital allowed them to farm intensively, but he said that the redistribution of the sizes of farms would be such a gigantic problem, involving questions of the provision of roads, cottages, buildings, &c., that it would be desirable to leave it until the solution of more urgent problems had been attempted.

12. On the subject of the improvement of grass land, Mr. E. J. Cheney, C.B., Chief Agricultural Adviser to the Board, who accompanied Lord Crawford, said that the only way of increasing the production of meat, milk, and cheese from grass land was either to improve the feeding value of the land, or to supply the animals grazing upon it with increased quantities of concentrated food, or both. It was, he said, common knowledge that a very large proportion of the grass land of the country is badly farmed. There can, however, be no large increase of the production except at a higher expenditure on labour, fertilisers, &c., and at pre-war prices the farmer had to consider not how much he could get out of the land, but how much he could afford to get out. Mr. Cheney agreed that where the rainfall was not too great a larger production of food would be obtained from grass land by ploughing it up than by leaving it in grass, but he would hesitate to advise upsetting local practice which was generally the result of experience, such as for example, that which prevailed in Cornwall where "seeds" are often left down for 10 or more years and it was impossible to distinguish temporary from permanent pasture. On the subject of drainage, Mr. Cheney said that the amount of money borrowed under the Improvement of Lands Act for pipe draining, which was, as a rule, a landlord's improvement, during the 25 years, 1847-1872, averaged £295,242 a year, during the 10 years 1873 to 1882, £103,027 a year, in 1884 it was £105,240, in 1894 £17,609, in 1904 £2,647, and in 1914 £1,587. The year, in 1884 it was £105,240, in 1894 £17,609, in 1904 £2,647, and in 1914 £1,587. The cessation of capital borrowing for drainage purposes corresponded with the period of agricultural depression. Speaking generally, the drainage of the land that remains in arable cultivation has been maintained and a certain amount of fresh drainage has been done, but the drainage of the grass land, more especially the area which used to be under the plough, has been absolutely neglected.

2nd Day, 11th October, 1916.

THE RT. HON. F. D. ACLAND, M.P.

(Parliamentary Secretary to the Board of Agriculture and Fisheries.)

13. Mr. Acland stated, in the first instance, that he gave his evidence as an agricultural politician, not an agricultural expert. The views he would express were based not so much on his 18 months' experience as the Parliamentary Secretary to the Board of Agriculture and Fisheries as on an association with agricultural politics spread over several years.

14. He looked at the whole problem first and foremost from the point of view of making the best use of land. Incidentally, from the point of view of security, he considered it essential that our home production of wheat should be greatly increased, but felt that this would not really ensure a sufficient supply of wheat at a critical time unless it were supplemented by some scheme of storage. Without that, our national supplies might, in spite of increased production, easily run below a point of safety.

15. Mr. Acland said that the nation would have to form an entirely new idea of patriotism, and that one of the forms which that idea will take, and ought to take, is that a much better use must be made of the national heritage—the land, not only in order to increase production, but also because the increase of the population living on the land and making a living out of the land, is a very great asset to national life. He regarded compulsion to make the best use of land, with forfeiture of land if it were not made the best use of, as the centre and foundation of any new policy. As a minor point, Mr. Acland stated that the formulation of a rational scheme by people with a knowledge of land conditions, would prevent some reckless and stupid campaign by such bodies as the supporters of the taxation of land values, who appear to hold that extra production can be secured merely by applying sufficient taxation to the land without encouragement or any other action by the State. Mr. Acland then gave a few other illustrations of the low standard of performance and industry both by landowners and farmers. He expressed the opinion that if land were to be put to a better use, it was absolutely necessary that there should be some years during which owners will be expected to adapt themselves to the changed position. During these years also, it will be necessary for the State to demonstrate by very complete experiments that it is possible to secure a higher standard of production without loss of profit. The policy of State experiment or State-supervised experiment would have to be very bold. He also thought that a great deal more ought to be done with regard to the study of agricultural economics.

16. Mr. Acland summarised his opinion on the subject by saying that if the State is to insist on a better use being made of the land, it must be able to show that that use of land will normally pay the different persons engaged in it from year to year. It is impossible to expect or to force a farmer or landowner to do what it does not pay him to do, and, therefore, Mr. Acland considered that the argument should be put before him in a reasonable way: that the State was going to insist upon a better use of land, that for some years it was going to show the way itself, and that, in order to get the great increase in production which is necessary, the State recognised that it must be made possible for farmers to obtain a reasonable amount of profit from some of the most essential forms of cultivation. This could only be done by giving some stability with regard to the price of the crop or crops upon which the whole system of farming hinged.

17. Mr. Acland felt strongly that if stability were to be given, it should take the form of a guarantee of a uniform minimum price rather than that of a duty. By adopting a minimum price for wheat, the State could inform taxpayers what they are paying year by year, and, moreover, bread prices will not be interfered with. In his opinion the system of stability which includes a guaranteed minimum price for wheat had in it the elements of a bargain, the State enforcing maximum production on the one side and guaranteeing remunerative conditions on the other, and he thought that the Englishman, although he would be very ready to fight over a policy of duties, when he had made something in the nature of a bargain or an arrangement—which duties could never be—would be inclined to honour it and regard it as permanent. With regard to a general policy of protection, he agreed that if ever the nation adopted general duties, agriculture would have to struggle for its share, but gave reasons why in his opinion this would be disastrous for agriculture.

18. Mr. Acland later expressed the opinion, in reply to Mr. Douglas, that there appeared to him to be no necessity for the establishment of a guaranteed price for any other crop than wheat. He regarded wheat as a pivotal crop in producing an increase of production, and felt that a guarantee of some sort of stability with regard to the price of wheat ought to produce a great increase not only of wheat but of stock and all forms of farm produce. He was unable to accept the argument that unless there was a higher minimum price for oats than the price before the War, it will be impossible to cultivate land as it ought to be cultivated. He stated that it was only from the point of view of a higher standard of production that he saw the necessity of a guaranteed price for wheat—in itself he did not advocate even that. Mr. Acland was unwilling to suggest any definite figure at which the guarantee should stand, but pointed out that, if an appreciably higher figure than 40s. was recommended, one of the arguments to be brought forward would be that in Germany between 1896 and 1906, during which period agriculture was taking root on a new basis and developing very rapidly and very well, the average price of wheat, including the duty, was a comparatively low one (38s. 4½d.), and it

should not need a guaranteed minimum price much higher than that to do the same in England, although he admitted that the cost of production in England will, in future, be higher than it was at that time in Germany, and that the German farmer obtained protection for other crops than wheat.

19. Mr. Acland then stated that, from a political point of view, he considered the State should establish a moderate guarantee as to the price of wheat, and that any further funds available should be applied to other methods of encouraging the conversion of grass land into arable. In connection with the latter question, one point which Mr. Acland thought well worthy of consideration was whether, on estates where the tenants are converting grass into arable, some special assistance should not be offered to the landowners (on whom the burden of the cottage building and fresh farm-buildings will fall) in order to help them to meet the capital expenditure which will be necessary. In reply to a question put by Mr. Strutt, Mr. Acland stated that he was not in favour of the assistance he had suggested taking the form of a continuing bonus year after year on the acreage ploughed up; it should, in his opinion, be a "lump" sum spread over, say, three years. Sir Alwyn Fellows afterwards raised the question as to whether the proposed bonus should not be given to the farmer rather than to the landowner, but Mr. Acland, while admitting that something might have to be done to tide the farmer over the first few months after he had increased his tillage, maintained that the farmer ought to have lots of capital after the War and would not for the most part be involved in any capital outlay, while the owner would have to meet the expense of building cottages, altering buildings, &c. Asked whether he had thought of any definition of the sort of grass land on which a bonus should be allowed, Mr. Acland replied that he was not sure that any definition would cover it, and that it would probably have to be dealt with by local judgment.

20. Discussing agricultural wages, Mr. Acland said that the securing of a proper wage should form an essential part of any new agricultural policy. He acknowledged the difficulties connected with the establishment of Wages Boards in different districts, but thought that the question of securing wages in the low-wage counties was one which must be tackled and carried through; if it could be done voluntarily, so much the better. Asked whether he did not consider that the Wages Boards should be set up everywhere and not only in low-wage counties, Mr. Acland agreed that that would probably be the right thing to do, but thought that such Boards would not have to be made use of in counties like Northumberland, where wages, in many cases, would already be higher than the minimum fixed.

21. Mr. Acland also thought that too much stress should not be laid on the establishment of a minimum wage as a *quid pro quo* for a guaranteed price for wheat, and stated that, although the guarantee of a minimum wage and the guarantee of a minimum price for wheat would go together, they were not two complementary parts of the same argument—he considered both to be essential, but not necessarily dependent on each other. No working man would accept the argument that because the farmer at last was to be made to pay fair wages, he had already been done with many other sweated trades, he ought to have some special reward. Mr. Acland was of opinion that better wages pay in the long run, and that they have not got to be in force very long to prove that they pay. He did not suggest any sum at which he considered the minimum should be fixed, but said that a bold suggestion might be made that the minimum weekly wage should be half the amount of the guaranteed price for wheat. In any case, he considered that the wage should be sufficiently high to enable the man to pay a full economic rent for his cottage as in towns.

22. The housing problem, Mr. Acland agreed with Mr. Strutt, is a gigantic one, but also a most important one since, if a great many more men are brought on to the land and agricultural production is increased, a great addition to the rural population will result.

23. In reply to a question by Captain Bathurst, Mr. Acland stated that he thought it a very good thing that everybody should realise the burden of rates by direct payment of his own, and that, although this might, in the first place, make the public more than ever unwilling to agree to useful rate expenditure, he considered that that objection should be worked through, and the people shown that sound expenditure by public authorities produces a valuable return. He agreed that, on the whole, the burden of rates—not so much as they are, but as they ought to be—is rather too heavy on the agricultural industry, and considering, as he did, that there ought gradually to be a very great increase of rate expenditure on education and health especially, he thought that, from the national point of view, it would be good policy for the burden of rates to be adjusted both in town and country.

24. With regard to agricultural rents, Mr. Acland considered that farming suffered a great deal more from under-renting than it was ever likely to do from over-renting, and that some of the best farming and production in the Kingdom was in districts where farms were rented up to their full economic value. He observed that he could not conceive of any system of rent-fixing at the present time which would not have, from the point of view of agriculture and production, a greater effect in perpetuating slovenly and low standards of farming than in encouraging the farmer to put forth his best energies. Mr. Acland explained that if a system could be established which would fix rents at what they ought to be, and would also secure that when the landowner expended capital he should get from the tenant a proper business return on the money expended, he would welcome it, but otherwise he thought it would be a very considerable disaster to agriculture.

25. In reply to Mr. Strutt, the witness stated that he considered that it might be necessary to use compulsion in order to ensure that owners and farmers made the best possible use of the land, but he thought that that should not be done until great encouragement had been given to them and fair warning. He thought that then, should some owner still refuse to take the steps necessary to increase the output from his estate, the Government would be quite justified in taking the land out of his hands, giving him 25 years' purchase of what he is making out of it at the time, and sell or let the land to someone who will make better use of it. Mr. Acland expressed the hope that the idea that a policy of compulsion, based on a realisation that greater production was a national necessity, was in the background, would in most cases have the desired effect, rather than the actual fact of compulsion.

26. Mr. Acland advocated a survey being carried out of the agricultural land of Great Britain, and he regarded such a survey as urgently required. He thought the survey should go thoroughly into the position of each property from the point of view of its ownership, and also each village and parish, in order to investigate the agricultural, social and economic questions connected with each district. Until the State found out exactly, parish by parish, what was wrong, they could not begin to insist on its being put right.

27. Asked by Mr. Strutt whether he advocated the establishment of State Industrial Farms, Mr. Acland replied that he was certainly in favour of farms being run in which all accounts and operations should be under State inspection and direction, but he would like the management to be carried out by the landowner himself on the lines of a large industrial business. He admitted that, in the past, proprietors' farms could not usually be considered as models to be followed by tenants with a view to commercial success, but gave as the chief reason for this the fact that it has never been regarded in this country as part of an owner's duty to use his land to the best advantage.

28. With regard to the production of food from land at present used for other purposes, such as golf or deer-stalking, Mr. Acland expressed the opinion that where it can be shown that the great majority of persons using such land cannot obtain reasonable recreation as pleasantly or cheaply in any other way (as is the case with some golf courses in the neighbourhood of towns and used largely by artisans) he would be prepared to take no action. But if this were not the case, and the land could be put to better use under crops, he would require that the owners should use it for agricultural purposes even at a large sacrifice of rent.

29. On various matters which occurred incidentally in his examination, Mr. Acland expressed the following views. He would put the onus of securing good cultivation on the landlord, not on the tenant. It might be necessary later to cut the landlord right out of the British system of agriculture, but the State should first try every means of making him work at his job as hard and efficiently as other people were expected to do. He would not actually apply compulsion at once, for it would be necessary to have the goodwill of the best landowners and farmers behind the policy, and this could only be secured if they were given sufficient time to adopt new methods, but it must be made clear from the very beginning that compulsion would be applied as soon as there had been sufficient time. It would have to be recognised as scandalous, and unbecoming for a gentleman, that landowners should take longer holidays from real hard work than railway managers—and that would take time. If landowners did not train some of their sons for their profession that would show that they were not qualified to conduct the profession, and the land should pass to those who were. The State would have to set the example of securing better farming on the land under its control, and other public bodies should do the same. The system of big farms would, incidentally, train men who would be sought for as tenants even if they had not capital: the need of capital was an artificial protection to agriculture and harmful to it. Agriculture was far more helped by the State than any other industry, and the reason it was not far more helped than it was was rather indifference of agriculturists than the indifference of the State. It was well worth considering whether all farmers should not be brought compulsorily under Schedule D. of the Income Tax, not only so as to produce more revenue, but also in order to make them keep accounts. The problem of securing that the owner of land had capital adequate to carrying on his industry was extremely difficult; the owner who had industry and goodwill towards land but no capital, and the owner who had capital but neither industry nor goodwill both did harm, and were a check on real development.

30. Mr. Acland concluded his evidence by saying that he foresaw very great difficulties in carrying out a policy of the kind he had discussed, but he thought that the difficulties would simply have to be faced and gone through with.

3rd Day, 12th October, 1916.

PROFESSOR JOHN WRIGHTSON.

31. Professor Wrightson, late President of the College of Agriculture, Downton, and special Crop Reporter to "The Times," thought that the Committee would probably accept as a truism his statement that an increase in the area devoted to cereals must, *pro tanto*, increase the production of beef and mutton. Rotations of crops entail the production of many tons of roots besides a hay crop; and, in addition, during a four-course rotation, two corn crops, producing two tons of straw to the acre. Thus, an increase in grain crops should make it easier to maintain stock. The conversion of grass land into arable would therefore increase the production of beef and mutton, and the same would apply to milk, because it is immaterial to the farmer whether he devotes his roots and hay to the production of beef or milk.

32. Captain Bathurst pointed out that the views of the witness on the subject of the Sub-Committee's enquiry had been fully set out in a Paper entitled "The Extension of Agricultural Food Supplies" which he read before the Farmers' Club in December, 1914, and suggested that it would be most convenient to the Sub-Committee if certain extracts from this Paper were read and the witness examined on them. The following extracts were accordingly read:—

33. "England and Wales produced enough [wheat] to feed its population (then of 20,000,000) in 1854, when, according to figures given by Sir John Lawes, its wheat requirements were exceeded by 2 per cent. It has not done so since.

34. "When we remember that of the total wheat produced in Great Britain, 9·4 per cent. is grown in England, it is clear that this is chiefly an English question. It might be said that as we grew enough wheat to supply our population in 1854, we should be able to do so now. I do not, myself, see why not, provided the inducement was forthcoming.

35. "Convinced, as I am, that arable cultivation can alone solve this problem, and that it is connected with wheat-growing to a paramount degree, I assume 358 lbs., or 5½ 62-lb. bushels, to represent the annual consumption of wheat per head of population. Six bushels over 40,000,000 people = 240,000,000 bushels; as also do 30 bushels per acre over 8,000,000 acres. The question is, where are we to find this 8,000,000 acres? or, to be less ambitious, how can we double, treble, or quadruple our present area of 1,756,000 acres? In the first place, it is well to remember that Great Britain, within the memory of many of my hearers, grew 3 to 4 millions of acres of wheat. I propose to leave out many minor questions which affect the main issue, such as the reservation of seed, weight per bushel, average yield, improved varieties, &c. It is quite likely that a large increase in area would diminish the average produce to, say, 28 bushels; but we are out for big figures and approximate estimates, and I hope the discussion will not be deflected to smaller considerations.

36. "If all the land laid down to grass since 1857 were broken up, it would not help us to produce more than half the amount of wheat required. We should have a vast increase in our arable land, but it would be cultivated on some principle of rotation of crops, and would not mean that amount of land brought under wheat in any one year.

37. "The question seems to involve a large increase in land immediately under the plough, and this at once introduces the question of rotation grasses and sainfoin left down for periods of from two to seven years.

38. "Apart from breaking up pastures, I can see a substantial increase in wheat cultivation, especially in those counties which have largely adopted this particular system. . . .

39. "More than half of the total wheat of Great Britain is grown in 12 English counties—all adjoining each other, and together forming the Eastern, South-Eastern, and East Midland districts. They are Beds, Berks, Cambridge, Lincoln, Norfolk, Suffolk, Essex, Kent, Sussex, Hants, Herts, and Northants. These counties all devote from one-fourth to one-sixth of their total arable land to wheat.

40. "There are many others which certainly do their duty as to wheat-growing, among which may be mentioned Oxford, Warwick, Wilts, Gloucester, Hereford, and Worcester.

41. "Where, then, are the defaulters? They are to be found chiefly in the North and West, where the system of allowing rotation grasses to lie for several years prevails. As examples of these: Cornwall only allots one-seventeenth of her arable land to wheat; Devon, one-eleventh; Yorks, one-tenth; Durham, one-fifteenth; Northumberland, one-fiftieth; Cambridgeshire, one-twenty-first; Cheshire, one-tenth; and Lancashire, one-seventeenth. Even Shropshire and Dorset only contribute one-eighth of their arable land to this purpose, although they enjoy exceptionally good climates for the purpose.

42. "As to the suitability of our Northern and Western counties to produce wheat, there can be no doubt whatever. From 1857 to 1861 it was my privilege to see week by week a double row of wheat and other corn sacks stretching across Hexham Market Place every Tuesday. About six years ago I was in Hexham on market day and not a single sack was to be seen, the entire district having practically gone down to grass. I know personally that North Yorkshire, Durham, Northumberland, and East Cumberland grew very large areas of wheat sixty years since, and that 40 bushels per acre was thought a standard good crop, just as in most other wheat-growing counties. . . .

43. "The ploughing up of two, three, four, or more years' grass however, offers one of the best means of increasing our wheat area. I will take the 12 counties which produce over half the present crop grown in Great Britain. They comprise 4,571,460 acres of arable land

and produce 918,242 acres of wheat. Now, if all these counties grew the same proportion of wheat as Bedford, Cambridge, Essex, and Herts, they would produce 225,000 acres more than they did in 1913. If the remaining English counties were induced by higher prices to grow wheat over even one-fifth of their arable land, instead of over one-sixth, one-tenth, one-twentieth, or even one-fiftieth (as in Northumberland), they would yield 1,162,452, instead of 705,000 acres, as at present, or a gain of 396,800 acres. By this simple process we should gain 620,000 acres without touching out permanent pastures.

44. "We know that oats have largely taken the place of wheat since the per acre value of the two cereals approached each other so nearly as recently. I believe a great deal of land has been 'over-cropped,' hence tulip-root, eel-worms, and frit-fly.

45. "The latest Returns of the Board of Agriculture give 14,360,000 acres of arable and 17,567,000 acres of pasture, also exclusive of heath and mountains. There appears, therefore, to have been in Great Britain a decrease of about $3\frac{1}{2}$ millions of arable land and an increase of $5\frac{1}{2}$ millions of acres of pasture, due probably to a wider definition of grass land. Before proceeding further, it is interesting to enquire how this enormous increase in grass has affected live stock? As briefly as possible, it has resulted in a loss of 5 million sheep and half a million pigs, with an increase of 2 million cattle of all ages, including calves.

46. "As $3\frac{1}{2}$ millions of acres have actually disappeared from arable cultivation, I use that area as a basis. I reckon that $5\frac{1}{2}$ millions of sheep and pigs equal 916,000 cattle (6 to 1) which reduces the net increase in live stock (in terms of cattle) to 1,084,000. That is, the land taken from the old arable area is maintaining one stirk or yearling to almost exactly $3\frac{1}{2}$ acres of land! I, however, doubt the increase of 2 million cattle since 1867, because 1866 was the cattle plague year, when the Royal Agricultural Show had to be abandoned, and British herds were devastated to the extent of over 200,000 head. That is to say, there must have been more cattle in 1865 than in 1867. Considering that we have sacrificed in this transaction pretty nearly 1,000,000 acres of corn, the result must be allowed to be very disquieting as to food production, and to afford a cautions comment upon our progress.

47. "Now, of the $3\frac{1}{2}$ million acres abstracted from the 1867 areas, only from one-third to one-fifth would come under wheat in any one year, but it is equally true that an increase in tillage is tantamount to an increase not only in corn cultivation, but in meat and milk, pigs and potatoes, fruit and vegetables, and everything that the title of this paper implies. With $3\frac{1}{2}$ millions of acres, judiciously selected out of existing grass land, we might look for 1,000,000 more acres of wheat, and reach a total of 4,700,000 acres, which is as far as competent authorities might be inclined to go. That we might, if necessary, raise another million or two acres is as true as that we might raise an extra million or two of soldiers—and there is a certain analogy between the two cases; but we scarcely contemplate entire dependence upon home production, and what I have indicated appears sufficient for any circumstances likely to arise. That an increase in wheat area would react upon the food supply generally is well shown in the case of bacon, a commodity which depends much upon barley-meal, pollards, sharps, and milk. There were more pigs in Great Britain in 1868 than in 1913. Also, as to dairying—apart from cheese-making—can anyone doubt that more cows could be maintained and more milk produced on 100 acres of tillage than on 100 acres of grass, together with 50 acres of wheat in addition?"

48. Professor Wrightson stated that the argument he had advanced in his Paper of December, 1914, went to show that the gain of two million cattle in the last 40 years was not equal in the matter of meat supply to the loss of five million sheep and a half million pigs. He referred the Committee to a later Paper on Food Supplies which he had contributed to the "Contemporary Review" for September, 1915. In his opinion it was possible to increase very materially the production of wheat without converting any grass land to arable. A great deal of land could grow wheat twice in four years just as easily as once in four years, and the changes which he had suggested in his Paper would bring about the following additions to the acreage under wheat without an increase in the scheduled arable area.

By slight and simple changes of relations in eight counties	225,000 acres.
By general reversion to a five-course system	396,000 ..
By increase in the Scottish area	56,000 ..
By reducing the area devoted to oats in England and Wales in favour of wheat	1,000,000 ..
	<hr/>
	1,677,000 ..

49. He was, however, strongly in favour of plunging up grass land; and he thought it was possible by this means to provide a very large proportion of the inhabitants of the United Kingdom with the wheat they required. He saw nothing impossible in producing five to six million acres of wheat. Assuming that the Government made it profitable to grow wheat, there would be no difficulty in trebling our wheat production. He would not venture to advocate aiming at more than five million acres. He was averse to farmers being compelled to increase their area under wheat. In previous times, when four million acres were cropped with wheat, it was because it paid to grow wheat. At the present time it paid better not to grow wheat.

50. With regard to the area of England suitable to wheat cultivation, the witness explained that if a line was drawn from Hull through Bristol to the Dorset coast, south and south-east of that line would be found the main wheat-growing area. The proportion of land in those

per annum, while in the same period, and on the same basis prices, England had remained stationary at only £4 of gross output per acre. Germany increased the quantity of cereals and potatoes produced by 60 per cent. in the 20 years, and also increased her meat production by 25 per cent. Knowing that the soil and climate in Germany were no better than England, the conclusion seemed obvious that their method of cropping, or rotation, plus better cultivation, was the cause.

58. The most obvious defect in the agriculture of the United Kingdom, from a food producing point of view, was the small area of grain produced; and, as Germany and France each produced all their own meat with only 27 per cent. of their cultivated area under grass, it was obvious that the increase of meat production came with increased grain-growing area.

59. Knowing there would be the utmost difficulty in persuading people in the United Kingdom to increase arable beyond breaking up the grass laid down since 1875, Mr. Fielding stated that he determined to see what the United Kingdom could produce on altered rotation with the acreage of plough land no greater than that in 1873. He, therefore, worked out after numerous trials the "Agricola" scheme of cropping*. Roughly, the scheme involves a rotation of: One crop of wheat in each three years; one crop of barley, oats, peas or beans each three years; one clover crop in each seven years; and one cleaning root crop in a seven-year rotation; peas or beans should be introduced as one of the corn crops to aid the clover and to add natural nitrogen to the soil. Calculating the crop that would result on no higher basis than the present average the United Kingdom yields, the quantity available for human food and for animal food that would be produced by the "Agricola" system of cropping was ascertained. The wheat and potatoes that would be produced were found equal to the total United Kingdom pre-war consumption. In order to ascertain how far the other crops would go towards feeding the animals needed to supply the United Kingdom with its needs of meat, milk, butter, cheese, sugar, &c., required the calculation of the rations needed to feed cattle, sheep and pigs of all ages, as well as the horses to work the land. (Tables headed in.) The quantities of animal food available were found to be sufficient for all the animals that would have to be kept to supply all needs of meat and half the imported butter. Mr. Fielding explained that the figures used in the tables referred to are matters of practice, and to some extent of opinion. He had worked these out from data collected over many months from every available source. As proof that under the whole "Agricola" scheme it was possible to grow almost all our own food depends on the accuracy of these tables, he had been at great pains to verify that within small limits the rations are correct. As a practical check he fed his own 30 farm horses and 300 cattle of all ages on these rations successfully for twelve months. He had put the figures before the best experts, and so far no one has seriously disputed their suitability. He had also converted the whole of the German crops into starch units of nourishment, and then worked out what all the animals kept in Germany would have consumed in starch units had they been fed on the "Agricola" rations. The results showed that in total the proposed rations for English animals correspond almost exactly with the German practice. Mr. Fielding claimed, therefore, that these figures demonstrate that not only all our bread and potatoes can be produced in this country, but all the food needed for the animals producing our meat, milk, cheese, &c., and most of our butter, if the soil of the United Kingdom is cropped in a proper rotation suitable to the national needs.

60. To produce these results it would be necessary to break up 4,000,000 acres of grass land; to grow wheat in England at least one year out of three; to produce more oats and barley in Scotland and Ireland; and also to produce an increased yield of about 20 per cent. of hay and mussels through an increased consumption of basic slag and other phosphatic and nitrogenous manures.

61. To carry out the scheme an additional supply of about 150,000 to 200,000 farm labourers would be necessary. 100,000 cottages would have to be built for the extra labourers, who might well be recruited from soldiers at the end of the War. Mr. Fielding suggested that most of these cottages might be built, as far as roofs, floors, upper walls, doors, &c., are concerned, from War Office huts to be handed over to agriculture at, say, half the pre-war price of the wood of which they were built. The witness handed in a plan of a good cottage so constructed, the cost of which on a pre-war basis works out at £120.

62. The "Agricola" scheme would also require 25,000 three-furrow motor ploughs, or their equivalent in steam, and the import annually of an additional $1\frac{1}{2}$ million tons of oleaks, of which Germany before the War imported 2,000,000 tons, largely from the British Empire. It would require that we should keep nearly two million more cows, several millions more young horned cattle, and that we should increase our pigs threefold. The manufacture of a sufficient amount of phosphate manure (superphosphate and basic slag) would have to be secured at reasonable prices. The exports of sulphate of ammonia Mr. Fielding urged should be stopped, or greatly reduced, when there will be ample artificial nitrogenous manures made in the country without the import of more nitrate of soda than at present. In potash, we must hope to draw supplies from Lorraine when it again becomes French soil; failing this, the Spanish deposits may be opened up. Otherwise, for potato and other root growing this country will still be dependent on Germany.

* The "Agricola" scheme of cropping with related tables is printed as Appendix III. to the Report (Part I) of the Sub-Committee.

63. Additional capital must be available for the farmers, as, with the somewhat intensive cultivation to be followed, the farmer will require the use of £9, if not £10, per acre. Mr. Fielding suggested that existing banks in all the county towns should have a co-operative guarantee by the Government against loss up to 75 per cent. of advances to farmers (or up to 100 per cent. in cases where the Board of Agriculture guarantees any farmer about whom the bank manager is doubtful).

64. No breaking up of grass land, or increased proportion of wheat growing could be asked of the farmer unless he was guaranteed by the Nation against loss. The unanimous opinion of Lord Milner's Committee, of which the witness was a member, was that the farmer should be secured against loss by being guaranteed a price for the wheat he produced. With such a guarantee, and 22 per acre given, either as a gift or as a loan, to cover the cost of breaking up the grass, he could be reasonably called upon to break up the land which had gone down to grass in the last forty years, and should be required to follow the rotation which would secure the Nation the bulk, if not the entire quantity, of the food it requires. The farmer could also fairly be required to pay a minimum wage of 20s. a week to his labourers, and the landlords could fairly be required not to exact any undue increase in rent during the Government guarantee.

65. The town worker should not grudge paying in taxation the equivalent of an extra halfpenny per loaf for his bread, if necessary, to secure the nation against starvation through submarine action, especially when the manufactures of the country would find additional home purchasers when a large part of the £300,000,000 now sent abroad for soil products was retained within the United Kingdom.

86. In regard to the amount of the guaranteed price for wheat, it would not be unreasonable to give the farmer less than the inflated import price of wheat likely to rule during the coming year or two, and Mr. Fielding suggested a guarantee of 50s. a quarter during the War, with the right to requisition all his wheat at 55s. and a guarantee of 42s. 6d. for seven years after the War. It is, in his opinion, absolutely necessary to give several years' guarantee, to pay the farmer for breaking up land and increasing wages. The method of paying such a guarantee would be very simple, viz.: After the close of each year, the farmer would render a bill to the Excise Office in his county town for the quarters of wheat he had threshed at the difference in price between the Government guarantee and the official Board of Agriculture average market price of wheat for the year. As a guarantee of quantity, a certificate would be given by the owner of the threshing machine, and the whole matter be always open to investigation and check by the Inland Revenue Authority.

67. In cross-examination, Mr. Fielding stated that, in his opinion, the only difficulty in bringing some millions of acres of grass land under the plough was the question of labour. In the first year it would not be possible in many cases to grow wheat on the new arable land if broken up late in the year, but this could be done the second year after it had been broken up. In his opinion the reason that the acreage under wheat in England had not been reduced even lower than it stood at present was that farmers did not keep books, and in many cases were unaware that they were growing wheat at a loss. Moreover, many farmers grew wheat in their rotation and for the straw. He did not regard it as profitable before the War to grow wheat at 3s. a quarter.

68. In reply to Sir Matthew Wallace, Mr. Fielding said that in his calculations he had used 32 bushels per acre as the average yield of wheat, but, by use of fertilisers, it was quite possible to grow even up to 50 bushels to the acre, but, of course, he did not advocate as high as this.

69. Replying to Mr. Douglas, witness said that if the English farmer was offered 42s. 6d. for wheat he would displace a proportion of his oats and barley in order to obtain the benefit of the guarantee, and in this way the Scottish farmer would benefit indirectly from a guarantee on wheat alone, because he would meet with less competition from the English farmer in oats, &c. England is better suited by climatic conditions to grow wheat than Scotland and Ireland. In England wheat could displace 300,000 acres of oats, 200,000 acres of barley, 200,000 acres of turnips, and 1,600,000 acres of rotation grasses. This, plus two million acres at present grown, and that to be got from broken up grass, gives nearly the 8,000,000 acres required for wheat.

70. With regard to the question of wages, Mr. Fielding said that one could not expect the town voter to agree that the farmer should be assisted from State funds to increase his production unless he was satisfied that the agricultural workmen received an adequate wage. He had, therefore, come to the conclusion that a minimum wage for agricultural labourers must form an essential part of any new agricultural policy. Such minimum wage should be fixed by a Wages Board in each district. With regard to rents he considered it might be necessary to introduce legislation to ensure that landowners would not exact any undue increase as a result of the additional returns obtained by farmers through the minimum guarantee.

71. Asked whether he considered it necessary for compulsory powers to be given to the State to ensure that increased production was obtained as a result of a minimum guarantee for wheat, Mr. Fielding said that though you could compel the farmers to produce all the wheat we needed at once, he thought it was better that the Nation's needs should be placed before the farmers in a reasonable and persuasive way and that, they being assured that they would benefit financially by the scheme, no compulsion would be necessary. On the other hand,

if after two or three years the scheme did not have the desired effect, the State would be justified in using compulsion.

72. With regard to the amount of the guarantee, Mr. Fielding said that he did not regard 42s. 6d. as an excess figure. A smaller amount would certainly not be sufficient to induce farmers to increase their arable acreage. Parliament must give this guarantee for at least 8-10 years, which guarantee must be in the form of a contract which could not be cancelled, and payment would have to be made to farmers for all the wheat they produced. The machinery that would be necessary to distinguish between the additional wheat and the amount at present produced would be too complicated. If minimum agricultural wages, however, are increased after the War much beyond the figure which he had mentioned, namely, 30s., it would probably be necessary to increase the guaranteed price for wheat somewhat beyond 42s. 6d. The agricultural labourer at present on the farms was not, in his opinion, worth as much as 25s. a week.

73. Mr. Fielding considered that eventually nearly all grass land should be ploughed up.

74. In reply to Mr. Roberts, Mr. Fielding said he hoped eventually the Government would take all home-grown wheat and supply Government bread over every Post Office counter at a fixed price for 20 years. The Government could do this at a profit to the nation if they bought the English wheat at 60s. a quarter and sold the bread at 5d. the 4-lb. loaf. Mr. Fielding thought that the bonus of £2, which he had suggested should be paid to the farmers for every additional acre which they ploughed up, should be regarded as a sum which it was necessary to supply to enable farmers to meet additional transition expenses and capital expenditure which would be incurred in the first year or two. Before very long, 1,000,000 acres of sugar beet should be grown. Sugar beet is one of the essentials of the improvement of agriculture. Munition workers should later on be turned on to production of agricultural implements. Additional manure would possibly be obtained from factories erected by the Explosives Department of the Ministry of Munitions.

75. In reply to Mr. Hall, the witness stated that his "Agricola" scheme was based on the rations required for animals kept in this country, and that on the "Agricola" scheme basis it would be possible to supply all the food for human consumption as well as that required for all the stock needed to produce all our meat and milk by ploughing up 4 or 5 million acres of grass land and altering the rotations in the way he had suggested in his evidence in chief. He admitted, however, that it would be necessary to break up a considerably larger area of grass land in order to grow food equivalent to our present imports. The difference between present consumption in this country and the amount required to provide the rations under the "Agricola" scheme, Mr. Fielding agreed, was no doubt accounted for to a great extent by the large amount of food which was wasted by the present want of method in feeding.

76. In reply to Captain Bodhurst, Mr. Fielding said that the purchase price of some agricultural land suggests that much land is under-rented. He would not hesitate to counsel any covenants in tenants' leases preventing their breaking up poor pastures. No doubt it would be necessary to protect land-owners from tenants ploughing up their good grass and then leaving the farms after taking two or three crops off. Land-owners, even though they did not receive any all-round increase in rent in consequence of the guarantee scheme, would obtain considerable benefit in various indirect ways from increased prosperity on their estates. He thought that it was highly desirable that the sons of land-owners should be educated in agriculture, so as to take more intelligent interest in the management of their agricultural estates.

4th Day, 24th October, 1916.

Mr. GEORGE A. FERGUSON.

77. Mr. Ferguson stated that he farmed about 1,000 acres in the County of Elgin, of which he owned about 180 acres. He said that a great deal more cereals could be produced in Scotland than were being grown at the present time, and that of the land under grass it would be quite possible to convert one-third or one-half into arable without decreasing the production of meat and milk. This would involve more intensive cultivation. That could not possibly be brought about except with an increase in the average price of cereals. He thought that the Government should consider what crops were required in the national interest and take steps to ensure that farmers would not receive less than a certain minimum price for such crops. Since the price of cereals fell, the cost of producing grain in Scotland had very often been greater than the price realised by the farmers. In his opinion it would be desirable to impose fluctuating import duties on oats and wheat so as not to allow the price to fall below the cost of production. He considered that 20s. per quarter for oats and 40s. for wheat would be reasonable figures. Whatever method was adopted for giving the farmers a certain stability of price he had no hesitation in saying that extra capital would not be attracted to agriculture without such stability.

78. Mr. Ferguson considered that opportunity should be afforded tenants for purchasing their land; such a proposal would be very popular in Scotland and largely taken advantage of. The object would be to give farmers greater security of tenure and do away with bad

"landlordism." He said that under the present law some security was given to the tenant, but in order to put the law into operation farmers found it necessary, as a rule, to expend more money than they gained by compensation. He stated that in Scotland the great majority of landlords understood their business and were managing their estates in a very satisfactory manner. Farmers complained, however, that too many estates were managed through lawyers' offices. He considered that land-owners should be helped to equip their holdings, on poorer land, and to build cottages for their workmen. This could be done either by the State allowing them to borrow money on easy terms or by making grants for these purposes. It was necessary also to take some action to improve drainage. The present scheme had too much "red tape" about it and too little practical knowledge, and very few farmers took advantage of it. It was very desirable also to protect small farmers from purchasing worthless manures. This could be effected through educational methods.

79. Mr. Ferguson regarded it as very unfortunate that so little research work in agriculture was being undertaken in Scotland. He thought a great improvement in agriculture could be effected by improvement in varieties of grains suited to Scottish conditions, and urged that agricultural research in Scotland should be supported on the same scale as was being done in England. With regard to agricultural education the witness favoured the provision of classes for young men being held in the country in the afternoon rather than in the evening. He thought that farmers would be quite willing to release their men for this purpose once a week during the winter season, and that students would be more able to take advantage of lessons in veterinary hygiene, the care of machinery and similar subjects in the afternoon than when they were tired after a full day's work.

80. He further said that demonstration areas attached to colleges were of great educational value to farmers and he advocated the establishment of an area or areas in every county.

81. Another subject which needed attention was book-keeping, and witness considered that it would be an advantage for farmers to pay income tax on the profits derived from their business rather than on the rents paid. This would compel them to go in for method and keep books, which was not done at present by more than 3 per cent. of the farmers in Scotland.

82. Mr. Ferguson had no hesitation in saying that with a wise public policy and by impressing on farmers the national importance of increasing the home production of food, the yield in Scotland might be increased by at least 40 per cent. To obtain such a result it would be necessary to stabilise the price of wheat and oats. He did not think that the stock or dairy farmers would have any reasonable grounds for complaint if this were done, as all farmers grow cereals to some extent. In Scotland cows were house fed for eight months in the year. He agreed with Captain Bathurst that a guarantee in the price of wheat only might have some effect on the price of oats, as no doubt some farmers would be inclined to grow more wheat and less oats. The price of 40s. which he had mentioned would, in that case, be too small for Scottish farmers, as wheat was only grown on the very best land, and if the State wanted wheat grown on part of the acreage now devoted to oats, the price would have to be somewhat higher. A guarantee of 40s. would be sufficient to ensure a profit on the present production of wheat, but it would not be sufficient to tempt the Scottish farmer to increase his area. For this purpose 42s. or 45s. would have to be kept in view. If a bottom figure was determined for both oats and wheat he thought the figures he had mentioned, namely, 20s. and 45s., would be sufficient, although no doubt farmers would like more. If cereals were to be grown more often in the rotation than at present, more horses and implements would have to be employed, and this meant greater expense. It was, therefore, essential that the price should be adequate. At present in his part of the country farmers adopted the six course rotation and "seeds" were usually left down for two or three years. There was, however, very little permanent grass. He would be willing to lessen very considerably the area of grass-land in his part of Scotland. In the West, however, the climatic conditions were different and grass land was essential.

83. Mr. Ferguson said that he would like to see the wages paid to agricultural labourers higher than they were before the War. All over Scotland, in his opinion, there was scope for increasing the number of agricultural labourers. He was afraid, however, that among Scotch agriculturists there would be serious opposition to the proposal to set up Wages Boards in different districts to ensure that the labourer received an adequate minimum wage. Recently farmers had given their labourers a half holiday a month on a Saturday, except during seed time and harvest, and this had proved very popular amongst the men and in his opinion had helped to keep them on the land.

84. Mr. Ferguson had had some experience with an oil motor tractor. He considered that ploughing cost him about 12s. 6d. an acre with the tractor, but admitted that if it were possible to hire one at that rate he would rather do so than use a tractor of his own. The tractor ploughed five acres a day with three ploughs at a depth of 8 in. by 12 in. for each furrow, working from daylight to dark, and its great advantage was that it enabled him to get his work done at the proper time and a larger area put under wheat.

85. With regard to the progress of agricultural co-operation in Scotland, the witness considered that the Societies which had been formed had not been the success they ought to have been. Farmers joined them for a year or two and then left the Society and got into the hands of agents who often sold them spurious goods, but gave long credit. He admitted that the same experience at the lack of loyalty of members of co-operative societies had been met with all over the world. In Scotland the societies had done more valuable work in the sale of good seed than in anything else.

86. In reply to Sir Matthew Wallace, Mr. Ferguson said that he considered that the regulation of a minimum price was absolutely essential so far as Scotland was concerned if an increase in the production of cereals was to be obtained. At present Scottish farming depended more on stock than on cereals. Oats had continued to be grown, often at a loss, to enable farmers to produce stock. While a guarantee of 30s. for oats might not be much inducement to farmers to break up grass land he was confident that it would be an enormous impetus to the cultivation of cereals. He thought it was necessary for the Government to adopt a definite policy in this matter and not leave the agricultural community in doubt. Often the British farmers were not able to compete with the foreigner in producing cereals, and he did not consider that the nation could obtain a permanently increased supply of home grown cereals unless a fostering policy were adopted.

87. Mr. Ferguson said he wished to draw the attention of the Committee to the desirability of standardising weights and measures. In Scotland there is one standard for oats in Aberdeen, another in Glasgow, and another in Edinburgh.

5th Day, 25th October, 1916.

MR. W. H. BEVERIDGE, C.B.

(Assistant Secretary, Board of Trade Employment Department.)

88. *Trade Boards.*—Mr. Beveridge gave the Committee, in the first place, a description of the work of the Trade Boards established under the Trade Boards Act, 1909. The Act provides for the establishment of Trade Boards in the following trades, to which it applies without Provisional Order:—

- (1) Ready-made and wholesale bespoke tailoring and any other branch of tailoring in which the Board of Trade consider that the system of manufacture is generally similar to that prevailing in the wholesale trade.
- (2) Making of boxes or parts thereof made wholly or partially of paper, cardboard, chip or similar material.
- (3) Machine-made lace and net finishing and mending or darning operations of lace curtain finishing.
- (4) Hammered and dollied or tumbled chain-making.

89. Power was also given to extend the Act to other trades by Provisional Order (to be confirmed by Parliament) and this power was used in 1913 to bring in the following additional trades:—Sugar confectionery and food preserving; Shirt-making; Hollow-ware making (including the making of tin boxes and canisters); Linen and cotton embroidery.

90. At the present time, accordingly, there are 13 Trade Boards in existence, viz.:—Chain-making; Lace finishing; Paper-box making (Great Britain); Paper-box making (Ireland); Tailoring (Great Britain); Tailoring (Ireland); Tin boxes and Canisters (Great Britain); Hollow-ware (Great Britain); Shirt-making (Great Britain); Shirt-making (Ireland); Sugar confectionery and food preserving (Great Britain); Sugar confectionery and food preserving (Ireland); Embroidery (Ireland).

91. The total number of persons now covered by the Act is estimated at nearly 400,000, of whom about 80 per cent. are women and girls.

92. Apart from Ireland there is only a single Trade Board for each trade, covering the whole area of the trade. In those trades which extend to Ireland there is a separate Irish Trade Board. Some of the trades concerned are localised (e.g., Lace-finishing, Chain-making), but others (e.g., Tailoring, Shirt-making and Sugar Confectionery) are widely spread. Provision is made under the Act in the case of widely distributed trades for the establishment of district committees. These, however, have, generally speaking, only an advisory power and the actual authority rests with the Trade Board. In view of the fear of competition between the different districts, it has hitherto been deemed advisable that there should be a single authority for the whole trade.

93. Every Trade Board consists of equal numbers of members representing employers and members representing workers in the trade, together with a smaller number of "appointed members" who are persons unconnected with the trade and appointed by the Board of Trade. In every case but that of the Tailoring Trade Board (Great Britain), on which there are five appointed members, the number of appointed members acting on a Trade Board is three. While the Boards for the various trades are in themselves separate, a certain general unity of principle has been secured by the fact that there are a common chairman and a common secretary for all the Trade Boards, with a single office and clerical staff in London. Some of the appointed members are also members of more than one Trade Board. The representative members may be either elected or nominated, as the regulations for the particular trade provide. In most cases they are nominated and the present tendency is to prefer nomination to election.

94. The main function of a Trade Board is to fix a minimum time rate which shall be earned by every ordinary worker in the trade. The position of the worker of less than ordinary efficiency is dealt with below. There are various provisions as to the notice to be given of the rates proposed to be fixed and as to confirmation by the Board of Trade of rates fixed by a Trade

Board. Generally speaking, however, the Trade Boards have a very considerable independence and the Board of Trade can only control their determinations to the extent of refusing to confirm a rate and referring the rate back for further consideration. The Board of Trade cannot amend a determination.

95. The minimum fixed by the Trade Boards is really in most cases a minimum time earning. The majority of the workpeople concerned are, in fact, paid by piece. In regard to them the minimum time rate means that the piece rates must be such as to yield to an ordinary worker not less than the minimum time earning. The Boards have, indeed, also power to fix general piece rates, and any employer who is in difficulties as to fixing his piece rates, because he does not know whether these will be such as to yield the minimum time earning, can apply to the Trade Board to fix for him a special piece rate. These powers, however, have been very little exercised except in the case of the Lace-finishing and Chain-making Boards. Generally speaking, the Trade Board simply sets up a minimum time earning and lets the individual employer or groups of employers fix their methods of remunerations as they please, subject to the one condition specified above. In the second place, the time rate is not a minimum which must necessarily be earned by every worker. Where payment is by the piece, the rate need only be such as to yield the minimum time rate to an ordinary worker. "Ordinary" in this connection means something different from "average." If the word "average" were used, it would presumably mean that half the workpeople might earn less than the minimum. The use of the term "ordinary" implies that only those may earn less than the minimum who are in some way inferior workers. This does not mean that the inferior worker is unprotected. If paid by time he is entitled to the full time rate (unless individually exempted by permit as below). If paid by piece he must get the same piece rates as the others, and only earns less because of his inferiority. There is also a provision for giving special permits to time workers affected by an infirmity or physical injury which renders them incapable of earning the minimum time rate. This power has been used, but not very widely. The most common minimum rate for men at present in operation is 6d. an hour, but both higher and lower rates have been fixed. The minimum rates for women in Great Britain range from 2½d. an hour in the small localised trades of chainmaking and lace finishing to 3½d. an hour in the important and wide-spread trades of shirtmaking and tailoring. (Higher rates, up to 6d. an hour, have recently been fixed for certain special classes of women in the tailoring trade, but the number of women affected by the above-mentioned rate is small). Special rates have been fixed by all the Trade Boards for juvenile workers, according to age and experience; and special rates have also been fixed for women without previous experience. Latterly the minimum rates have shown an upward tendency, and revision of rates is still proceeding. Thus the Tailoring and Tin Box Trade Boards (Great Britain) have recently proposed to raise their minimum for men from 6d. to 7d. an hour; and the Shirtmaking and Tailoring Trade Boards (Great Britain) propose to raise the minimum rate for women in their respective trades from 3½d. to 4d. an hour. Perhaps the most significant characteristic of the rates fixed is that though the Trade Boards have full power to fix different rates for different districts, in no case has this power been exercised. The constitution of a single Trade Board for each trade has been followed by the fixing of a uniform minimum rate for the whole trade in all districts.

96. The Trade Boards are independent bodies in respect of their activity in fixing rates. As regards the administration of the Act (in particular the enforcing of it by inspection and the correspondence thereon), the Act provides for this being undertaken either by the Board of Trade direct or by the Trade Boards (if the Board of Trade so decide). All the officers are appointed by the Board of Trade, but by arrangement with the Board they work under the direction of the Chairman of the Trade Boards and the current administration is carried on from the office of Trade Boards. Only certain important matters, such as actual prosecutions and, of course, the making of regulations and the constitution of fresh Trade Boards, are reserved to the Board of Trade. Though some of the trades in question, as stated above, are widely spread throughout the United Kingdom, it has not hitherto been found necessary to set up local Trade Board offices, the business being conducted centrally.

97. A failure to pay the proper rates is an offence punishable on summary conviction by a fine not exceeding £20, and a further fine not exceeding 25 for each day on which the offence is continued after conviction. The employer may also on conviction be required, in addition to any fine, to pay to the person employed such sum as appears to the Court to be due on account of wages. Failure to give necessary information is punishable by fine, and the giving of false information can be punished by fine or imprisonment. Up to the present time it has not been necessary to prosecute employers very largely. The total number of prosecutions to date is 39. In 38 of these, convictions were secured. In two cases imprisonment without the option of a fine has been inflicted. Most cases are settled without prosecution, and arrears of wages, amounting sometimes to very substantial sums, are recovered for the workpeople by the intervention of inspectors.

98. As regards the results of the Trade Boards Act, Mr. Beveridge made the following general observations:—

- (1) That in some of the worse-paid trades (in particular, lace-finishing and chain-making) a substantial general advance of wages has been brought about. In others, where the original level of wages was higher, the advance has been less general. But in these also the Trade Boards have levelled up the rates paid by the worst employers and in the lower paid districts. There is no reason to doubt that the minimum rates fixed by the Boards are, in fact, generally observed.

- (2) This has been accomplished without involving harmful effects upon any trade as a whole or hardship to any appreciable number of individuals. The power of putting inferior workers on piece-rates, together with the provision for permits of exemption for time-workers, have substantially met any difficulty of this kind.
- (3) It has proved possible, even in trades which were wholly or largely unorganised, to set up fairly representative Trade Boards, and the setting up of the Trade Board has in itself largely increased the amount of organisation both of the employees, and of the workpeople. This has been particularly marked amongst employees.
- (4) There is a fair amount of evidence of improvement of factory organisation with a view to securing greater efficiency of production, and the higher wages have to a large extent come from this source.

Mr. Beveridge observed that the whole period since the passing of the Act has, generally speaking, been one of upward movement of wages in all trades.

99. *The Application of Wage Regulation to Agriculture.*—In making suggestions as to the application of wage regulation to agriculture, Mr. Beveridge stated that his proposals should be taken as purely personal and tentative since the Board of Trade had not had sufficient time to go into the question thoroughly. He suggested that, if it were decided to apply minimum wage legislation to agriculture, about eight Agricultural Trade Boards should be constituted, covering between them the whole area of Great Britain. He considered that a county would be too small a unit of area and the whole of Great Britain too large, and accordingly proposed that the unit should be a group of counties, e.g., South-Western, Home Counties, Northern Counties, &c. The constitution of the Agricultural Board should follow the Trade Board model, that is to say, they should consist of equal numbers of employers' and workpeople's representatives, with a smaller number of appointed members, and one Chairman for all the Boards.

100. The determinations of the Agricultural Boards would, like those of the Trade Boards, be subject to confirmation by the Government Department concerned. Mr. Beveridge stated, however, that some stronger central control and guidance might need to be exercised, and in this connection suggested that a general standard minimum for the whole country (e.g., a time earning of £1 a week for ordinary labourers) might be fixed by some central authority, and that then the Agricultural Boards should have the following two main functions:—

- (a) Preparing and submitting to the central authority for approval schemes for giving effect to this general standard within their area (i.e., working it out in terms of actual weekly wages, piece rates, harvest money, special allowances in respect of housing, milk, vegetables, &c., according to local custom) and for applying the necessary variations for different classes of workpeople.
- (b) Submitting for approval, with appropriate schemes, proposals for varying the general standard either upwards or downwards, either as regards the whole of their district or a part of it, where special reason for such variation could be shown.

101. Mr. Beveridge stated that although the question of local rents of cottages might be a matter to be taken into consideration in fixing the local wage rate or suggesting variations from the standard, it seemed to him, on the whole, contrary to policy to combine in one authority the functions of fixing rents and fixing wages. This might mean that low wages would be allowed to persist and to be compensated for by reduction of rent, so as in effect to give subsidised wages in the agricultural industry by means of uneconomic rents. If the rent were fixed too low, private speculative builders would not put up cottages, so that they would need to be provided either (a) by the landowner or farmer—amounting to a payment of wages in kind, or (b) by the local authority—amounting to a subsidy from the rates to the agricultural industry. It is preferable that full wages should be paid and that the employer should, as in the case of the trades subject to the Trade Boards Act, be driven to meet any extra expenditure by improvements of organisation. For administrative and inspecting purposes Mr. Beveridge thought it might be necessary to have local headquarters for the officers or inspectors appointed to secure the observance of the minimum rates in each Wages Board district.

102. On the whole, assuming that the policy of wage regulation in agriculture is favoured, there appeared to him to be no reason why some plan, broadly on the lines of the Trade Boards Act, with the necessary adaptations, should not be successfully applied thereto. The difficulties of securing workpeople's representatives in unorganised trades have been encountered and overcome in trades subject to the Trade Boards Act. The Trade Boards have also dealt with systems of employment and remuneration comparable in complication to those ruling in agriculture, and it should not be in any way beyond the powers of a district Agricultural Board to work out any general standard of wages in the necessary detail suited to its locality. Each district board would be authorised to make differing recommendations for different parts of its district, but, as he had pointed out in connection with the Trade Boards, Mr. Beveridge thought it probable that the general tendency would be in the direction of uniformity within each Trade Board district.

each on business lines, one in North Wales and the other in South Wales, and the provision of demonstration plots in prominent places, such as cross-roads, &c. Agricultural co-operation would also greatly assist increased production. In Wales, especially in the West, it had succeeded more than anywhere in England. With increased tillage it would be necessary to give farmers easy access to capital. They had tried to stimulate co-operative credit in Wales, but not very successfully.

111. There was great scope for reclamation of land in Wales. In the estuary of the Towy, for example, 5-700 acres could be reclaimed by building a sea-wall and embankment. In most Welsh counties areas of 2-300 acres could be found at low elevation which it would pay to reclaim. There were also tens of thousands of acres of sheep walks in the upper reaches of the Towy, Teify, Wye and Severn, let at 1s. per acre, which might profitably be planted. Very few people would be displaced, and it would be a great advantage to the locality for the smallholders in the valleys to have an opportunity of doing forestry work in the winter months. Large quantities of water, which now run to waste, might also be utilized as power on the farm, as was done in Sweden.

112. The facilities for the transport of agricultural produce in Wales were very inadequate. In certain parts, Cardigan for example, there were large areas of good arable land which had never been exploited owing to the inability to get the produce away. Mr. Jones-Davies did not consider that the system of land tenure presented any difficulty in the way of increased production provided there were sufficient safeguards for compensation on either side. In certain parts of Wales a great deal could be done in the way of market gardening and potato growing. Much land would greatly benefit from draining.

6th Day, 26th October, 1916.

Mr. T. H. MIDDLETON, C.B.

(Assistant Secretary, Board of Agriculture and Fisheries).

Comparative food production on different types of land and systems of farming.

113. Mr. Middleton, having been asked by the Sub-Committee to compare the food produced per acre in Great Britain in 1874 and 1914, referred, in the first place, to the estimates of the production of food under different systems of farming which he had laid before the British Association last year and which were published in detail in the "Journal of the Board of Agriculture" for September, 1915. These first rough estimates indicate that the poorest type of grass land was producing food per 100 acres to supply energy for four to five persons per annum; medium grass land was producing food for 19 or 20 persons per 100 acres; and the finest pastures in the country devoted to meat production were supporting 49 or 50 persons per 100 acres. In the last case, however, the food was an ill-balanced one, too rich in energy-producing constituents and too poor in flesh-forming constituents. Ordinary grass land devoted to dairying was providing food for 67 persons per 100 acres, that is, 54 persons from the milk and about 13 from the meat. Good arable land, well-farmed on a four-course rotation, Mr. Middleton estimated might provide food for 104 persons per 100 acres. He said that as the different types of land he had taken for the purpose of his estimate might not be found to be average examples of their class, he had recently attempted to make an estimate on an entirely different basis, taking crop by crop. These estimates, which were based on the annual average yield of the whole country, and allowed deductions for seed and waste, produced the following results:—Wheat, including the small food value of the straw, supplied energy for about 200 persons per 100 acres; the similar figure for oats was 155; potatoes provided energy for 400 to 450 persons, but being an ill-balanced food would need to be supplemented by other diets; sugar-beet, on the basis of a ten-ton crop converted into sugar, and the residue fed to stock, would supply food for 530 persons per 100 acres; the same area of meadow of average quality, converted into beef, would produce food for not more than 14 persons, and of clover hay, 16 persons; turnips and swedes, if converted into beef, would feed about 27 persons per 100 acres, and mangolds about 36 persons. On the basis of the 1914 cropping, of each 100 acres of ploughed land, 65 acres were devoted to grain crops, 9.6 to potatoes, 19.6 to roots, 3.3 to other crops and 2.6 were fallow. Taking these areas and the value of the food produced by each crop, Mr. Middleton estimated that ploughed land supported 84 persons per 100 acres. To obtain a similar figure for grass land he had made use of a detailed estimate prepared by a Committee of the Royal Society of the food value of the foods of the United Kingdom. From this he estimated that 38 per cent. of the total energy required in the United Kingdom was being produced at home, that is, that this country was feeding 17.6 millions of its population from its own produce. By deducting from this 17.6 millions the number fed from the ploughed land at the rate he had already mentioned, viz., 84 persons per 100 acres, Mr. Middleton arrived at the conclusion that the grass land of this country was providing food for only 20 persons per 100 acres. Mr. Middleton then explained two independent methods by which he had confirmed this

estimate of the food-producing value of grass land. The first method was based on the quantity of meat and milk produced by grass, and resulted in the conclusion that rather less than 21 persons were maintained from 100 acres of grass; the second method, which was based on the assumption that the average productiveness of pastures is equal to the productiveness of meadows, showed that 17 persons per 100 acres were supported by food produced from grass land. Mr. Middleton felt, therefore, that he could not be far wrong in stating that the ploughed land of this country was producing about four times as much food per acre, reckoned as energy, as the grass land of the country.

114. With regard to the comparison of food production in 1914 with production in 1874, Mr. Middleton said the question to which he proposed to find an answer was: "If you could replace the arable land of 1874, if you assumed that your grass land did not alter in quality, if, further, you assumed that the cattle and the sheep of the present time were available, that the feeding stuffs now coming into the country were available, what number of persons could be fed by the land of Britain?" Comparing the cropping of ploughed land in 1914 with that in 1874, Mr. Middleton stated that there was almost the same percentage (viz., 65 per cent.) devoted to grain crops, but while oats had gone up and barley had been constant, wheat, which produced most human food, had been reduced from 22·3 per cent. to 15·1 per cent. in the forty years. The other crops of the rotation compared as follows:—Potatoes, 9·6 in 1914 and 8·2 in 1874; roots, 19·6 in 1914 and 17·9 in 1874; other crops, 3·8 in 1914 and 3·8 in 1874; fallow, 2·6 in 1914 and 3·9 in 1874. 100 acres of ploughed land cropped as they were in 1874 were more productive (assuming a similar yield) than 100 acres as cropped in 1914 because of the greater area devoted to wheat. In 1914 the food produced in Great Britain was equivalent to about 19·7 weeks' supply, but if the 1874 rotation were re-constituted the produce would amount to 24·9 weeks' supply. The actual gain would be greater than the 26 per cent. increase indicated, in the event of a national emergency. This country fortunately is relatively well supplied with proteins and fat. While only 38 per cent. of the nation's energy requirements are produced at home, over 50 per cent. of proteins and fats are so produced. It would be an easy matter to produce in an emergency much more "energy" from the crops of ploughed land than at present. It follows, therefore, that while it should be possible without serious privation to make, if necessary, present home produce last for, say, 26 weeks, if the ploughed land of 1874 were restored, it would be possible to provide in the year following the outbreak of war home-grown food sufficient to support the nation for, say, 33 weeks, and possibly for a longer period.

115. Mr. Middleton was asked if he could give a comparison between the food units produced per acre in Great Britain and Germany. He estimated that on the basis of Professor Thompson's calculations, to which he had already referred, Great Britain was producing 480,000 calories per acre. Germany, on her own showing, was producing 960,000 calories per acre. The latter figure might be regarded with some suspicion as it was published during the War and was intended to hearten the German population, but Mr. Middleton knew that it would not be far wrong, and if allowance was made for game and other produce for which definite statistics were not available, the figure in question might be taken as being reasonably correct. Put in another way, a cultivated acre produced food for one man for 274 days in Germany as against 140 days in Great Britain.

Cost of Growing Wheat.

116. In reply to questions as to the cost of growing wheat in Great Britain, Mr. Middleton referred, in the first place, to an estimate of £4 18s. 6d. for direct charges made by Caird (*Jour. of the Roy. Agric. Soc.*, 1891), based on figures supplied by farmers throughout the country as to their expenditure on the wheat crop. Mr. Middleton thought that Caird's estimate was equivalent to £5 5s. at pre-war prices, allowing for increased labour charges and reduced cost of harvesting. He then referred to the careful estimates which Mr. Saville laid before the Surveyors' Institution (*Transactions*, Vol. XLVII.) in 1914, which showed wheat after beans at £5 7s. 8d., and wheat after clover £1 4s. 2d., interest on capital being included in each case. In 1902, when Mr. Middleton was at Cambridge, the cost of growing eleven acres of wheat on an experimental farm, where the records were carefully kept, was £4 18s. 6d., in which sum no allowance is made for manures applied to the previous crop. He had obtained from men he knew in different parts of the country estimates of the cost of wheat grown and these he laid before the Sub-Committee. A further figure from Cambridge showed the direct charges, excluding interest on capital, rent, rates, and manure, as amounting to £3 12s. 9d.; if the indirect charges were included this figure was increased to £8. An estimate from Shropshire showed £8 17s. 0d. as the cost per acre including £3 10s. for 15 tons of dung, but excluding interest on capital.* A Yorkshire estimate of the direct charges amounted

* Mr. Middleton subsequently received further detailed estimates from the Cambridge district, which were circulated to members of the Sub-Committee. These estimates were for pre-war prices, and gave the following figures for three cases, (a) wheat on very heavy clay; (b) wheat on a slightly less heavy clay; (c) wheat on chalk soil:—
 Manual costs at 14s. per week, 2s. 4d. per day, (a) 11s. 6d., (b) 11s. 4d., (c) at 2s. 6d. per day, 14s. 4d.; horse costs at 2s. 6d. per day, (a) 21s. 0d., (b) 22s. 4d., (c) at 2s. 3d. per day, 12s. 6d.; other labour charges, (a) 23s. 0d., (b) 25s. 5d., (c) 10s. 2d.; purchased materials, rent, etc., (a) 70s. 7d., (b) 63s. 4d., (c) 75s. 8d.; total, (a) 136s. 1d., (b) 122s. 5d., (c) 113s. 6d.

to £6 17s. an acre for wheat after "seeds" excluding interest, but including £2 5s. for six tons of dung and spreading. Mr. Middleton then gave in detail an *Essex* estimate of the cost of growing wheat after mangolds. This estimate, which excludes all indirect charges such as loss on other crops, and the residual value of dung, was as follows:—Ploughing 10s. 6d.; harrowing before drill 1s. 6d.; drilling 1s. 6d.; seed (2½ bushels at 30s. a quarter) 11s. 3d.; harrowing after drill 9d.; Cambridge rolling 9d.; 1 cwt. of sulphate of ammonia and sowing 14s. 6d.; harrowing 9d.; weeding thistles, &c. 3s.; harvesting (cutting round field with scythe, stacking and carting) 8s.; cutting with binder 2s. 8d.; 4 lbs. of treble 1s. 3d.; upkeep of binder 1s.; thatching 1s. 3d.; threshing (including coal) 10s. 7d.; dressing grain 1s. 9d.; hire of sacks 6d.; carting to station 2s.; rent, rates and taxes £1 10s.; hedging and ditching 2s.—Total £5 4s. 9d. Mr. Middleton pointed out that the preparation required for wheat after mangolds was not great, and that the estimate included no interest on capital or charge for the residual value of dung applied to the mangolds, for which £1 an acre seemed to him a reasonable charge. In reply to Sir Matthew Wallace the witness said that the yield amounted to five quarters to the acre, which at pre-war prices, say 34s., would realise £8 10s. to which might be added about £2 per acre for the straw, making a total of £10 10s. receipts from expenditure of £6 4s. 9d., leaving a profit of £4 5s. 3d. Mr. Middleton explained, however, that these were returns under ideal conditions, no allowance being made for occasional loss of crop or reduced yield.

117. Asked to give his own estimate, Mr. Middleton said that he regarded average figures as very dangerous, as conditions varied greatly in different parts of the United Kingdom. He, therefore, gave the usual variations for each of the items, not minimum and maximum figures, but ordinary costs, as follows:—Pressing, from nothing to 2s.; harrowing before sowing, from 1s. to 2s.; drilling 1s. 8d. to 2s.; harrowing after drilling 6d. to 1s.; spring rolling 6d. to 1s.; harrowing again, 6d. to 1s.; weeding, from 1s. 3d. to 5s.; scaring birds, from nothing to 1s.; cultivations 13s. 6d. to 26s.; harvesting, stacking and thatching 15s. to 20s.; threshing and marketing 11s. to 15s.; seed 10s. 6d. to 18s.; dung, charging one-third of cost of dung and spreading 20s. to 30s.; artificial manures, from nothing to 16s.; rent, rates and taxes, from 15s. to 35s. Adding the smaller amounts together the total would be £4 5s. and the higher £8, but this would never occur in practice as the higher rent and certain other items would more often be found with the low cost of other charges. The average cost was, however, in his opinion, £6 to £7 per acre.

Increased Production.

118. In answer to a question as to the methods of increasing the home production of food, Mr. Middleton said that improvement in production, as distinct from an extension of production, depended almost wholly as regards arable farming, on two things: first, on improving the farmer, and, secondly, on improving his plants; the improvement of farm animals was being undertaken by farmers themselves. While it was obvious that there was a great deal of bad farming throughout the country, it was, in the case of arable land, very difficult to effect improvements except through the farmer himself. He thought that two of the most important considerations were the need for stability in the price of arable produce and the establishment of a system of agricultural credit which would assist the farming community in a cycle of bad years.

119. Mr. Middleton pointed out that what may be the best measure for increasing production from the point of view of defence may not necessarily be the object at which one might aim for peace-time farming. In normal times one would wish to see the maximum production of the most profitable crops and to secure that on arable land it was necessary to spread risks. From the point of view of the individual farmer, the "all-out-for-wheat" policy was a risky one. The witness exhibited a diagram showing for each of the years 1911-15 the fluctuations in the returns obtained on a particular farm from five principal products, which indicated that the average was preserved only through the variety in the crops, and stated that if the farmer were asked by the nation to depend more on corn crops it was highly desirable, merely from the technical point of view, to stabilise his prices. The means by which such stability should be achieved were matters for consideration by the political heads of the Board rather than by him.

120. In reply to Sir Matthew Wallace, Mr. Middleton said that by education he thought a great deal could be done to improve the farmer, and, through him, increase production on the existing arable land—for example, raise the average yield of wheat from 32 bushels to 36 or 38 bushels—but there had not been much improvement in this respect in the last 70 years. Since 1874, about three million acres of arable land had gone down to grass in England, of which about one-fourth to one-fifth, say, 600,000 acres, would be annually cropped with wheat if converted to tillage. Of this area, about two-thirds, say 400,000 acres, might be expected to produce, if properly treated, as good crops as the existing wheat land, and the remainder a yield of about 28 to 30 bushels. The production of wheat from the converted grass land would, therefore, amount to about 3½ million quarters per annum, which Mr. Middleton agreed would be only a small contribution toward national requirements, but he said he attached great importance to the three million acres added to the arable area, which would mean that the

men and the horses were there, and the arable land could readily be used for wheat production in an emergency.*

121. In reply to various questions put by members on the subject of increased production, Mr. Middleton expressed the following views. There was a great deal of land in the United Kingdom more suited for oats than for wheat, and if the production of wheat only was stimulated by a minimum guaranteed price there might be a danger of some of this land being diverted from oats to wheat. He could not agree, however, that from the point of view of maximum production of food that would be a disadvantage, because the food value of wheat is so much greater than oats. A large acreage of wheat and bean land had been put down to grass, and this, if ploughed, could grow wheat every two or three years. The reason that additional land went down to grass in the last years before the War, in spite of wheat being at about 35s., was that stock was paying exceedingly well. On light land, sheep came into competition with arable land, and, on heavy land, dairying. With regard to sugar beet, in Germany the best farming has been encouraged by best growing. In England it might furnish the profitable root crop which was so badly needed. If the root crop could be made to pay, it would greatly assist the production of wheat. Sugar beet was a crop which required high sunshine and light soil. In Germany, potatoes were grown for spirit production, but he did not understand how that was done economically. The drying of potatoes for flour and stock feeding has developed rapidly in Germany. This became a practical proposition about 1908, at which time there were about 170 manufacturing plants; about 1911, this number had increased to 327, and, in January, 1915, to 1,300 or 1,400. The possibilities of this industry needed careful investigation; anything that could be done to steady the price of potatoes, which was a very fluctuating one, would prove of great value. The best hill farms in the Cheviots would probably not yield a direct profit from the application of slag or lime. He agreed that hill land suitable only for barley cultivation would not be broken up by offering a minimum guarantee for wheat alone. Grass land, such as at Cockle Park Experimental Station, which could be greatly improved as grass by manuring, would produce more food if ploughed, but possibly less profit. The price of stock depended very much on the purchasing power of the working classes, and he thought that, after the War, prices might fall considerably, but found it impossible to form any idea of what the relative prices of grain and stock would be in the future. Mr. Middleton did not think that the guarantee of a minimum price for wheat would have any effect on the market price for either oats or barley, both of which would follow world prices. The grass land of England could be made much more productive, possibly twice as productive, by the use of fertilisers. A guaranteed price would undoubtedly induce farmers to endeavour to increase their yields. One effect of prohibiting the exportation of miller's offals would be that the miller would offer the farmer less for his wheat. He did not attach great importance to the increased cost of labour after the War, because, after a short while, improved wages would produce better work, and, in the case of wheat, the total cost for manual labour amounted only to £2 per acre at pre-War prices. It was the absence of grass land in Germany which tended to the production of pigs rather than sheep. He explained that he had dealt with the year 1874 because that was the year mentioned in the questionnaire sent to him; there was, however, no reason why the arable area in that year should be regarded as the maximum, because, at one time, practically the whole of the land in the country had been tilled.

* Note.—In revising the report of his evidence, Mr. Middleton added that it is made clear that the 600,000 acres of wheat to which he had referred were to be grown on the converted grass land. In addition, wheat would, no doubt, be grown to some extent on the existing arable land which would be relieved of other crops transferred to the 3 million acres of new arable.

Mr. Middleton wrote as follows:—"In 1914 wheat occupied 21 per cent. of the ploughed land of England and Wales, in 1874 it occupied 30.4 per cent. The chief change in cropping in the past 40 years has been a substitution of oats for wheat. Oats in 1914 occupied 22.5 per cent. of the ploughed area, as against 13.6 per cent. in 1874. The crops taken together occupied nearly the same percentages of the ploughed land in both years, viz., 44.7 per cent. in 1874 and 43.5 in 1914. It must not be supposed that the substitution of oats for wheat was entirely due to the fall in price of wheat. Since 1874 the oat plant has been much improved, especially in varieties adapted for England, while, until Professor Hiffen's wheats began to appear, there was no substantial improvement in the wheat plant. Assuming the present varieties of wheat and oats, and assuming equivalent minimum prices to be guaranteed for both crops, the ploughing up of grass land, if uniformly distributed over the country, would not, in itself, disturb the relative sowings of wheat and oats. The effect of adding 3,000,000 acres to the area of ploughed land would in this case (at 21 per cent. wheat) result in 630,000 acres of wheat being grown on the ploughed area. If, however, more of the ploughing is done in the East and South than in the West and North, and if new and more prolific varieties of wheat are produced more rapidly than superior types of oats (this seems likely since Professor Hiffen has made greater progress with wheat than with oat-breeding), it might happen that wheat would be raised to its 1874 position, and occupy as much as 30 per cent. of the ploughed land. In this rather unlikely event, the 3,000,000 acres converted from grass would produce 900,000 acres of wheat. The probability seems to me to be that the proportion of the 3,000,000 acres actually ploughed which would be placed under wheat would be somewhere between 600,000 and 700,000 acres. Much of the poorer grass land broken up in the west and north would be given over to oat growing. On the other hand, good wheat land in east and south now growing oats and other grain crops would at once revert to wheat, and a "peace" area of 3,000,000 acres wheat as against 3,500,000 acres in 1874 and 1,800,000 acres in 1914 is quite probable. In the event of war the area under wheat might be expected rapidly to reach or pass the 1874 level."

7th Day, 7th November, 1916.

SIR ROBERT P. WRIGHT.

(Chairman of the Board of Agriculture for Scotland.)

122. Sir Robert Wright stated that Agricultural Education in Scotland was controlled by two separate Government Departments, namely, the Scotch Education Department and the Board of Agriculture. Under the Scotch Education Department courses of instruction are arranged at the four Teachers' Training Colleges, which qualify the teachers and schoolmasters to give elementary rural instruction in the rural schools, and, in addition, there are a number of special Vacation Courses at which the schoolmasters are given instruction during their holidays. The rural teaching is given in most of the elementary schools in Scotland to boys of from 12 to 14 years of age. In addition to that, a continuous course of three years' instruction was arranged by the Scotch Education Department, in consultation with the Board of Agriculture, just before the War broke out. This course was intended to qualify older boys and girls of from 15 to 17 years of age to enter the classes in Agricultural Colleges. Under the Board of Agriculture there are three Agricultural Colleges, situated in the cities of Edinburgh, Glasgow and Aberdeen. These colleges give complete three years' courses of instruction qualifying for the B.Sc. degree, and also for the Examinations of the National Diploma in Agriculture and other diplomas. In addition, each of these colleges employs a large staff of lecturers, instructors and instructresses, who give courses of lectures in the country districts on general agriculture, and who attend markets and advise and give lectures to farmers. Dairying and poultry-keeping are also taught by special instructresses employed by the colleges, and there is a seed-testing station directly under the control of the Board of Agriculture. In connection with the West of Scotland Agricultural College, there is a separate dairy school (the only one in Scotland), situated at Kilmarnock, some distance from Glasgow. Apart from the provision for agricultural education made through the Board of Agriculture and the Scotch Education Department there is a Chair of Agriculture in the University of Edinburgh and a Lectureship in Agriculture and Horticulture at the University of St. Andrew's. Sir Robert Wright stated that the County Councils did not, except in one or two cases, undertake direct instruction in agriculture. The Residue Grant, from which the County Councils formerly defrayed the costs of agricultural instruction, was transferred first to the Education Department and afterwards to the Board of Agriculture, so that the County Councils as a body did not now contribute directly to the support of agricultural education out of the residue grant. Some of them made contributions to the colleges out of what is called the "equivalent" grant, but, with a few exceptions, they did not give direct agricultural instruction. Asked whether he thought the present system of a conjoint responsibility for agricultural education between the Board and the Education Department worked well, Sir Robert Wright said that the arrangement had so far proved quite satisfactory, and he thought it would be difficult to avoid joint responsibility because the Board of Agriculture could not undertake the supervision of a small part of the education given in elementary and secondary schools.

123. With regard to the effect of the system he had described upon agriculture, Sir Robert Wright stated that, while much remains to be done, the work of the colleges had proved very beneficial, and he gave a few examples in support of this statement. One farmer, he said, by adopting the seed mixtures advised by his college, stated that he had increased his produce of grass by 30 per cent. The advice given by the colleges with regard to manuring had been most beneficial to many, e.g., in the application of artificial manures to the oat crop. Poultry management had been greatly improved, while, through the introduction of new varieties of oats, some farmers in the Lothians stated that twelve quarters per acre were obtained where formerly only eight quarters were grown. The practice of catch-cropping and also that of sowing late varieties of potatoes had been adopted, largely through the teaching of the colleges, while foodstuffs were now much more skilfully used in feeding cattle and sheep. In reply to a question put by Mr. Douglas, Sir Robert Wright admitted that the number of men going back to farms from the Agricultural Colleges, was, or had been, disappointingly small, but he thought that improvements in the colleges themselves would induce farmers to send their sons more freely. Sir Robert Wright expressed the opinion that while thirty years ago there was considerable prejudice among farmers against education, that feeling had almost entirely disappeared, and the most enlightened farmers were actively favourable to agricultural education. Asked whether there was any scheme in Scotland corresponding to the Farm Institutes scheme in England, Sir Robert Wright replied that Agricultural Schools were to have been instituted by the Board of Agriculture but it had not been possible to secure sufficient financial support before the War broke out. He considered, however, that such schools were still needed to complete the system of agricultural education in Scotland.

124. The witness stated that the co-operative societies in Scotland had all been formed under two central organisations, particulars of which had been supplied to him by the Secretaries. The Scottish Agricultural Organisation Society, which was the first and the most important, was founded in 1905 mainly for the purpose of developing co-operative organisation, and in 1914-15 there were 147 societies affiliated with this Society, and the turnover in sales amounted to about £388,000. In addition, the Society had formed, in the

West of Scotland, a number of very successful milk depôts, and, in connection with dairying and poultry societies, federations had been founded to unite the action of the local societies, and to act as selling agencies and further their trade interests generally. The other society which had organised co-operation in Scotland was the Scottish Smallholders' Organisation, which was founded in 1913, and had formed 46 registered trading and credit societies, and about 100 committees from which it was expected that registered societies would be formed. It published a small newspaper and had formed central markets, and a Central Land Bank to advance money to settlements of smallholders. The two societies, covering between them the greater part of Scotland, acted quite independently of one another, and although it had been alleged in some cases that they tended to overlap, Sir Robert Wright thought that that fact had not caused any serious disadvantage. A certain measure of control was exercised by the Board of Agriculture in the case of the Smallholders' Organisation owing to the fact that its contribution was paid directly from the Board's fund, whereas in the case of the Agricultural Organisation Society the contribution, though paid through the Board, was obtained from the Development Commission. The Land Bank founded by the Smallholders' Organisation Society had so far been employed simply in lending money to smallholders to provide stock. There was, however, an increasing demand for credit facilities in Scotland, and Sir Robert Wright considered that land banks could not be founded on a sufficiently large scale to meet the demand unless some form of State assistance were accorded to them. Questioned as to the advisability of consolidating the two societies, Sir Robert Wright replied that they were formed with different objects—the Agricultural Organisation Society was primarily a co-operative society, while the Smallholders' Organisation Society was founded also to assist in the formation of smallholdings. He was of opinion that, although in time a union between the two societies might be advantageous, in Scotland people often work better when there is a spice of competition and an element of rivalry, and he considered that co-operation in Scotland had not developed with sufficient rapidity to justify any scheme of consolidation being put into operation at present.

125. With regard to the possibilities of increased production in Scotland, Sir Robert Wright expressed the opinion that a considerable increase could be obtained both by the conversion of suitable grassland into arable, and by the improvement of the existing grass and arable land. He felt strongly that the most efficient method of increasing the productivity of the land was to increase the number of smallholdings, and gave in support of his opinion a number of cases brought to the knowledge of the Board of Agriculture showing how much greater, proportionately, is the production from a settlement of smallholdings than from a similar area run as a large farm. He stated, for example, that one of the earliest settlements made by the Board of Agriculture was on a farm of 830½ acres in Roxburghshire which was under arable cultivation. This farm was now split up into 12 smallholdings, and Sir Robert Wright had received the following particulars as to the amount of stock and crops carried in 1912 by one farmer, and in 1916 by the 12 smallholders:—

Stock.	1912.	1916.
Horses	8	23
Milk Cows	3	53
Sows	—	17
Young Pigs	—	71
Feeding Pigs	4	20
Sheep	650	608 (Reduction due to change of farming.)
Poultry	50	650
Crops.	1911.	1916.
Corn	93 acres.	115 acres.
Hay	20 "	90 "
Turnips	50 "	74 "

In another case the Board took for the formation of smallholdings a farm which had been entirely laid down to pasture. This farm, consisting of about 535 acres, was situated mainly on heavy clay land on an estate in the Gairns of Gairns, and 515 acres of this were divided into 11 smallholdings. It is found that although the change was only made in 1914, the farm already produces seven times as much human food as it did before the constitution of the smallholdings, and it is expected that the production will, in the course of a year or two be considerably greater.

126. Sir Robert Wright admitted that since, for some years to come, a great proportion of the land of Scotland will be farmed by large farmers, they must be taken into account in the establishment of any scheme for a rapid increase of food production, but he nevertheless maintained his opinion that the greatest amount of foodstuffs relatively would be, and was already, produced by smallholders. He also considered that smallholdings, as constituted under the Crofters' Act or the Small Land Holders' Act, are safer and more remunerative to landowners than larger holdings, partly because, under those Acts, the buildings become the property of the tenant, and the landlord is therefore free from all liability for expenditure of that kind. Sir Robert Wright said that one reason for considering that the food production from smallholdings would always equal or exceed that from even the best managed large farm, was that the smallholder will always have a supply of cheaper and much more efficient labour than the large farmer. His opinion was that the great majority of smallholders in Britain must rely

chiefly upon dairying, and pig and poultry production, with the growth of potatoes and of ordinary crops for stock feeding. The witness also expressed the opinion that if food production was to be greatly increased, more care should be taken by farmers to exterminate rabbits, rats and other pests. He stated that the Board of Agriculture had given grants to several societies in Scotland to enable them to undertake the destruction of vermin, and he considered that the Ground Game Act, which gives farmers equal rights on properties to destroy rabbits, had removed a considerable source of complaint.

127. In reply to a question put by the Chairman, Sir Robert Wright stated that, according to figures which had been supplied to him, there were, in the year 1883, 1,710,000 acres of land devoted exclusively to deer forests and sport, apart from grazing, in the crofting counties of Scotland. In 1912, this area had increased to 2,832,000 acres. Outside the crofting counties there were 668,000 acres, making a total in 1912 of 3,600,000 acres. In 1892 5,320,000 acres were scheduled by the Royal Commission as being suitable for cultivation, and Sir Robert Wright thought it probable that the area had considerably increased since that date. He thought that some of the more exposed of the mountain land scheduled might be kept profitably under wedder stock, while the lower land might be suitable for ewe and lamb farming. The witness gave as an instance of a small settlement of 1,500 acres in the centre of the deer forest area, where some of the lower ground is used for arable farming, and a sheep stock is kept on the higher ground. The annual sales of the produce from stock and crops give about £250 at normal prices, while on the same acreage under deer (four stags and two hinds) the food value is estimated at £20. Sir Robert Wright did not think the production of food from the land above the 1,000 ft. level could be estimated at a high value, and attached more importance to the conversion of the land below that level into smallholdings.

128. The witness agreed with the statement that grouse shooting is not injured, but rather benefited, by stocking and heather burning.

129. With regard to the reclamation of waste land, Sir Robert Wright said that the Board of Agriculture had, at the request of the Development Commissioners, examined schemes for the reclamation of foreshores in the estuaries of rivers, and of moss lands. The chief difficulties in the case of foreshores were those of drainage, fishing rights, &c., and in the case of moss lands, the excessive prices asked for land which is at present giving very little return, making reclamation of such land a wholly uneconomical proposition. Sir Robert Wright agreed that there was also a great deal of land in Scotland at present used for golf courses, which was quite good arable land, and he expressed the opinion that if the question of food production was of vital importance, the golf course should be confined to the poor sandy tracts where the game had its origin, and that all suitable land should be reserved for agricultural production.

130. Sir Robert Wright considered that a guaranteed and sufficient minimum price for wheat and oats would doubtless form an inducement to farmers to increase their production of cereals. He thought that if the guarantee was given for wheat only, there would be a tendency among the farmers to grow wheat at the expense of oats, which, in an out-growing country like Scotland, would be a serious disadvantage. If, after due encouragement and warning, a farmer did not produce what was reasonably expected, Sir Robert Wright thought that the threat of eviction would be the most effective method of compulsion.

131. Questioned as to the effect of agricultural depression upon small versus large farms, the witness gave figures showing that the county of Aberdeen, which consists mainly of small farms, was much less affected by the fluctuations of prices of agricultural produce than, for example, the county of Berwick, where the farms are mostly large.

Crop. (Changes between 1872 and 1914.)	Aberdeen.		Berwick.	
	Decrease.	Increase.	Decrease.	Increase.
Corn	23 per cent.	—	30 per cent.	—
Green Crops	85	—	143	—
Rotation Grasses and Clover	—	228 per cent.	—	53 per cent.

He added that, apart from the mountainous districts, the greatest production, in his opinion, would be obtained everywhere by the establishment of comparatively small farms.

132. In reply to a question by the Chairman as to the position in Scotland with regard to a minimum wage for the agricultural labourer, the witness stated that the question had not, so far as he knew, been discussed to any extent in Scotland. He said that there had been so much competition for labour in recent years that wages had tended to rise rather than fall, and there had been very little vocal demand for a minimum wage.

8th Day, 8th November, 1916.

Mr. R. N. DOWLING.

*(Organiser of Agricultural Education to the Lindsey County Council.)**Agricultural Education.*

133. Previous to his appointment as Agricultural Organiser to the Lindsey County Council, Mr. Dowling held the position of Agricultural Adviser to the National Sugar Beet Association, and before that was farming in Cambridgeshire. He has also been Lecturer in Agriculture to the Hunts County Council and at the South-Eastern Agricultural College, Wye. He stated that an Agricultural Organiser should have direct control over the agricultural education of the county in all its branches, and that a permanent staff of instructors in the more important subjects, *e.g.*, horticulture, poultry-keeping and dairying, was much more satisfactory than part-time instructors sent out from a college or other institution. He laid great stress on the importance of concentration and demonstration being the watchwords of the Organiser's work, *i.e.*, concentrating on definite centres or areas and following up all forms of instruction by practical demonstrations. With regard to lectures, Mr. Dowling expressed the opinion that, although it was advisable that the Organiser should respond as far as possible to direct applications for lectures, the number should be limited. He said that in some counties an Organiser's work is judged, to a certain extent, by the number of lectures he has given, and the total number of people who have attended these lectures, and he thought this an entirely wrong view. Mr. Dowling considered it of far more importance that lectures and all other forms of instruction should be followed up by practical demonstrations and visits to farms, and this would clearly be impossible unless the number of lectures given were comparatively small. The Organiser should have time to visit farms and smallholdings in the districts where lectures had been given, and also to arrange a series of demonstrations to prove, in a practical manner, the value of his teaching given in the classroom. In this way, the Organiser has a chance of making friends with those he desires to reach, and when once he has won their confidence, he will always be called upon for advice and assistance. Mr. Dowling gave an example of this from his personal experience, saying that a farmer who was an entire stranger to him wrote, at the recommendation of an old student of his (a smallholder), asking Mr. Dowling to go over to his farm and that of a neighbour, and advise them on certain points. He had found that when the farmers' confidence had been secured they would welcome suggestions and advice. Confidence could largely be secured by concentrating one's work on particular areas.

134. One of the most useful pieces of work open to an Agricultural Organiser is an Organised Day Course for farmers' sons, that is, classes held about once or twice a week throughout the winter. In Mr. Dowling's opinion, it is when the lads are beginning to be useful at home, *i.e.*, when about 18 to 23 years of age, and cannot be spared to attend a farm school or college, that they realise the value of a short course of practical instruction given locally. These classes should be as practical as possible, and should be followed up by field demonstrations and classes on the farm; by practical veterinary classes; and by demonstrations with oil engines, farm implements, and labour-saving machinery. Mr. Dowling considered that instruction of this kind was likely to influence and be of real value to the lads all their lives. He added that in Lindsey prizes are offered for competition, and the winner is also offered a free scholarship for one year at the Midland Agricultural College. A summer meeting is arranged to visit the college farms, and the lads have the advantage of a college course put before them.

135. Courses of instruction are also held in Lindsey during the winter for farmers and smallholders. Visits are made to the farms and smallholdings, and the Agricultural Organiser is thus brought into close touch with the holders, and his advice is of value in helping them to solve the problems with which they are often confronted. Mr. Dowling considered that it would also be advantageous for these men to visit different parts of the country in order that they should see other methods of farming.

136. It is one of the duties of an Agricultural Organiser to encourage farmers to have their manures, soils, &c., tested at the district college, and the witness said that in Lindsey, farmers can have this done free of charge, if in the first instance they apply to him; if they send direct to the Midland College, they have to pay in the usual way. This privilege has, however, not been taken advantage of very generally. Mr. Dowling stated that he knew of cases where the small farmer (a man with, say, about 80 acres) knows more about the proper value of manures than the larger farmer, probably because he has been entirely ignorant to begin with, and has been keen to acquire knowledge, and able to give a good deal of time to the subject. He thought that in his county, on smallholdings where an intensive system of farming is worked out and the holder is a competent man, the smallholding would yield a greater production than the large farm, but in the case of potatoes it would probably not be so. Given the right man, with capital and suitable soil, a smallholder could produce more per acre than a larger farmer.

137. With regard to Field Trials and Experiments, Mr. Dowling stated that these are usually carried out by the Organiser with manures, varieties of farm crops, spraying potatoes, &c. The district College or Institute should test numerous varieties of crops, the more successful of which can be passed on for trials in the County by the Organiser. In this way, collaboration of the Organiser and the college is assisted. Two or more centres where a winter course of classes or lectures were given during the winter may be selected, and

trials carried out on points of interest, on one or more farms, in sufficient numbers to provide instructive interest to a gathering of farmers, who can then go round what amounts to an experimental station situated in their own neighbourhood, and under their own soil and climate conditions. The results of the more important trials can afterwards be published, and these will be read with great interest by those who attended the meeting.

138. The work of the Organiser in providing instruction for the farm labourer includes classes in ploughing, hedging, ditching, under-draining, sheep-clipping, stonking and thalching. Mr. Dowling stated that it was an unfortunate fact that farmers will not as a rule offer any encouragement to rising farm lads by giving them careful instruction, and added that when, in one district, they were short of sheep-clippers, and he started a class for boys, the farmers were astonished that the lads were able to do the work successfully.

139. Mr. Dowling advocated strongly the establishment of demonstration smallholdings, to be run on commercial lines and made to pay. Every demonstration must be on the lines of increased profit, which will also mean increased production. Such a holding should be run on a sound practical basis, consistent with the possibilities of the district. It would afford the opportunity of showing the commercial value of manures and feeding stuffs, and also poultry-keeping, bee-keeping, and other things which are often not sufficiently understood or appreciated. Although he considered that in many cases such a smallholding might be run successfully by the holder himself, following the Organiser's suggestions, Mr. Dowling admitted that unless the man was under direct control, there might be difficulty in getting him to do all that was required, should it not be in accordance with his own ideas. He anticipated no difficulty in finding managers for the demonstration holdings provided good inducement were offered. If a man had not sufficient capital to start himself, he might come in and have a part interest. The Organiser would find these demonstration holdings of great value in assisting him to get into touch with the agricultural community, and they might also become centres for co-operative trading societies, egg-collecting depots, &c. These holdings might be linked up with a central demonstration farm run on commercial lines and connected with the district College or Institute. Asked whether the fact that an Agricultural Organiser was interesting himself in co-operation tended to alienate the support of agents, merchants, and other people who might be of assistance in educational matters, Mr. Dowling stated that he had found no difficulty of that kind. In the case of manures, for example, the Secretary of the Society would obtain quotations from the county merchants, from the Central Trading Board, and elsewhere, and the merchant, knowing that he has opportunities of dealing with the Society, has no objection to co-operative methods; in fact, he generally welcomes the transactions because of the cash payments. One of the objects he always had in advocating co-operation in buying was to impress on farmers not so much the importance of cheapness as of quality, and this was of importance to the big as well as the small farmer.

140. With regard to the appointment of a County Agricultural Organiser, Mr. Dowling said that he is selected by the County Council, but the appointment has to receive the approval of the Board of Agriculture, who also make a grant to the County Council, in proportion to expenses, for the work done. The rates of pay are usually from £300 to £400 a year, with an allowance for travelling expenses. Mr. Dowling agreed with a suggestion that it might be an advantage if a scale of salaries on a more liberal basis with rates of increment up to a certain maximum were fixed.

141. Mr. Dowling handed in a Memorandum dealing with the organisation of other branches of agricultural education as provided by County Councils, e.g., horticulture, dairying, poultry keeping and veterinary hygiene.

Cultivation of Sugar Beet.

142. Questioned as to the most suitable parts of England for the cultivation of sugar beet, Mr. Dowling replied that it could be cultivated in almost any part of the country, but that the north had the disadvantages attaching to late seasons. The ideal soil is a deep friable loam free from stones, but soils which produce a fair crop of mangolds are suitable if there is sufficient depth and they are not too "strong." Beet cultivation improves the fertility of all kinds of soil, particularly those of poor quality, such as light sand and gravel.

143. With regard to the advantage to agriculture and to the nation generally of establishing the sugar beet industry, Mr. Dowling said that he had noticed on the Continent that in districts where the farming system had been poor, beet cultivation had improved the productivity, raised the rents, and headlined the whole neighbourhood. He stated that, in his opinion, sugar beet could be successfully grown on both good and poor soil; it would form an excellent method of land improvement and would revolutionise agriculture in badly farmed districts, e.g., on some poor hungry sandy soils. A very large proportion of the refuse of the beet comes back to the cattle for food after the extraction of the sugar, and Mr. Dowling stated that the introduction of beet growing into a district usually resulted in an increase in the number of cattle kept. Mr. Dowling considered that the sugar beet industry could not be started in this country without State assistance. For a factory to run at a profit, 4,000 to 5,000 acres in fairly close proximity to the factory would have to be put down to beet, which would, to a large extent, take the place of the root crop. Asked whether he thought the labour position on the Continent made it easier to cultivate sugar beet there than here, Mr. Dowling said he did not think that that had a great effect upon it, and considered that the labour difficulty might be overcome by organisation. Women could be used to a great extent. Mr. Dowling thought that sugar beet could be brought about 20 miles profitably by rail, and that 40 to 50 miles should be the outside figure. He stated, however, that rail carriage should not be depended

upon, but that it was absolutely necessary to have suitable carriage by water. Under proper cultivation, the witness thought that a safe average return to expect would be 12 to 13 tons per acre of washed and topped beet, and he expressed the view that the very lowest price per ton at which beet could be raised profitably, based on pre-War prices and conditions, would be 21s. per ton, f.o.r. Mr. Dowling advocated strongly that steps should be taken to develop the sugar beet industry in this country.

THE HON. E. G. STRUTT

(Member of the Sub-Committee).

144. Mr. Strutt had been asked to give evidence on the cost of growing wheat. He handed in a statement showing the cost of production on a farm in Essex in 1913, 1915 and 1916, taken from a field to field tillage book. The direct charges amounted per acre to £8 17s. 11d., £7 19s. 9d., and £8 15s. 8d., respectively, in the three years. The increased cost in 1915 and 1916 was accounted for principally by labour charges and seed. Mr. Strutt explained that if the yield in 1916 had been equal to that of 1913 the extra cost of harvesting and threshing would have raised the 1916 direct charges to £9 4s. 1d.; in addition, shortness of labour had made it necessary in the War years to leave a certain amount of work undone which should have been done, and this had the result of reducing the cost in those years below what it would be in a normal year at present wages.

145. As the Sub-Committee were anxious to consider the question of wheat growing from the point of view of pre-war prices, only the 1913 figures were discussed. The detailed items for this year for 171 acres very suitable for wheat, were given as follow:—

Rent, Tithe, Rates, and Fire Insurance, £1 10s.; Sundries (hand labour chiefly), 6s.; Manure (farmyard and artificial), £1 2s. 9d.; Seed, 12s. 6d.; Horse Cultivation (previous to harvest), £1 5s. 1d.; Hand Labour Cultivation (previous to harvest), 8s. 7d.; Horse Expenses, Harvesting, 4s. 8d.; Hand Labour Harvesting, 11s. 2d.; Threshing and Delivering, 14s.; Thatching, 1s. 6d.; Binder Twine, 1s. 9d.; Total £8 17s. 11d.

146. Mr. Strutt explained that the above statement contained no charge for interest on capital nor for general superintendence, nor was any allowance made for the cost of the rotation, as wheat cannot in a general way be grown year after year in succession. This last charge he thought would amount to £1 an acre or more, as he had found that whereas the profit on wheat growing on this farm over a series of years had averaged £3 17s. 6d. per acre (exclusive of superintendence, and interest on capital), the profit on the arable land generally had amounted only to £2 14s. 9d. With regard to the method of keeping the accounts, Mr. Strutt said that the cost of manual labour in the operations on each field was charged wherever possible, but, in addition, an item of 6s. per acre was charged against each field for sundry expenses, such as fencing and odd jobs which it is impossible to charge to the account of any definite field or crop. This charge had been calculated to meet the average expenditure of this character. As regards horse labour, the total cost of the keep and expenditure incidental to maintaining a pair of horses and the implements used by them had been calculated, and a daily charge made for the use of the horses according to the time of year. The scale varied in the year 1913 from 4s. per day in the busiest time, to 2s. per day when there was less stress of work. With regard to the corn crops, farmyard manure was charged against each crop, the exhausted manurial value being carried over to succeeding crops.

147. Examined by Sir Matthew Wallace as to the profit obtained from wheat growing in 1913, Mr. Strutt said that if 10s. per acre for interest, 10s. for superintendence, and £1 2s. 3d. for the cost of the rotation were added to the £8 17s. 11d. direct charges, the total cost would amount to £9 6s. 2d. per acre, that is about 4s. 3½d. a bushel on the 5 quarters 2 bushels which was the average yield on the 171 acres in that year. Omitting charges for interest and superintendence the cost per acre would be £8 0s. 2d. The average price per quarter for wheat in 1913 was 39s. 4d., and the income per acre might, therefore, be taken as 5¼ × 39s. 4d. = £8 15s. 0d., to which he would add £2 per acre for the straw (although he was often told that that was an excessive valuation). The profit on this basis would, therefore, amount to £10 15s. 0d. less £9 6s. 2d. = £2 14s. 10d. Mr. Strutt could not agree with Sir Matthew that that was more than 30 per cent. profit, because he thought that interest and superintendence should both be charged and some allowance made for occasional loss of crop, and reduction in yield in certain years; moreover, a farm would not yield a profit of this kind as soon as it was taken over; he had often had to lose money for a few years after taking over a farm. He admitted, however, that he made a good profit out of wheat growing. Essex was very suited to wheat, and it was undoubtedly a profitable crop.

148. Questioned as to the desirability of a minimum guarantee for wheat in view of the profit which he had shown could be made from wheat growing at pre-war prices, Mr. Strutt said that although he found it profitable to grow wheat, a great many other farmers evidently did not do so, and he thought that the security given by a guaranteed price would undoubtedly act as a stimulus. The disastrous effects of the great fall in prices during the depression were still in the minds of farmers, and until they were removed farmers would not plough up their grass lands and grow more wheat. He agreed that if the result of a guarantee is to bring greater prosperity to agriculture, rents might be increased, but he thought that

rents before the War were in many cases below the real letting value of the land, and in any case an additional rent would often not be pure profit to the landowner. His own opinion was, however, that a large proportion of the increased return obtained by the farmers as a result of a guarantee would go to the labourer, as he thought that agricultural wages after the War would be substantially higher than before the War.

149. With regard to the amount of the proposed guarantee for wheat, Mr. Strutt referred to the Report he signed in connection with the employment of sailors and soldiers on the land in which 40s. to 42s. was recommended; farmers generally would ask for a good deal higher figure if their opinion was sought now. The Committee presided over by Lord Milner in 1915 had considered that the quantity of wheat grown on each farm could be arrived at by accepting the returns of threshing by the travelling machine. He did not consider that a tariff would have as good an effect in increasing wheat production as a minimum price.

150. In reply to questions as to co-partnership, Mr. Strutt explained that on the farm in question the practice had been for several years to give an annual bonus to each man, three houses, which amounted in all to about £200 a year on this farm of 900 acres, varying from £2 for an ordinary labourer to £15 or £20 for a bailiff. An employee could either draw his bonus in cash or leave the whole or part of it in the business, or invest his savings in the business. The men were guaranteed 4 per cent. a year on all money invested, and if the farm made a profit, they were given that profit in addition, whatever it might be, 10 per cent. or 15 per cent. The scheme was very popular with the men, and made the working of the farm more easy and the men more content.

9th Day, 9th November, 1916.

MR. RICHARD EDWARDS.

151. Mr. Richard Edwards has farmed, for the last 20 years, a typical Welsh upland farm of 400 acres, of which 360 acres are in Shropshire and the rest in Denbighshire. He has also had 18 months' experience as sectional valuer in the Government Valuation Department, chiefly concerned with agricultural properties in North Wales. He stated that wheat was very little cultivated on the hill farms in Wales, the chief reason being that it never ripens properly, and the grain is unsuitable for making into flour. He himself grew only a small quantity of bearded spring wheat, and that more for the straw than for the grain. The chief cereal grown is oats, and Mr. Edwards said that a bag (200 lbs.) fetched 12s. to 14s., but the oat was not fully ripened. One acre generally yields about 10 bags, giving a gross return of something like £6 per acre. On his own farm, some of the fields are steep and some fairly level, and Mr. Edwards said that those on the slope were 50 per cent. more costly to cultivate, requiring far more horses and labour. Harvest operations, he said, were also much more expensive on the slopes, and much harder work, since the self-binder was practically useless, and the work had to be done by hand with the old-fashioned scythes. Only an expert man could work successfully on the steep hillsides. These were the reasons that induced farmers to leave the land down to grass, especially as fat lambs were really profitable and had recently become still more so.

152. Mr. Edwards stated that he did not sell any of his oat crop, but used all the straw for fodder, and it, therefore, paid him to cut his grain before it ripened. He believed that with an increase in the production of cereals in Wales, not only could the production of meat and milk be maintained, but increased. In order to increase the production of cereals, he advocated a more intensive cultivation of the existing arable land. He thought it would be unwise to break up any large amount of land now in pasture, since there might be an insufficient supply of labour to cultivate it, and it might, therefore, become derelict. Apart, however, from the labour difficulty, he was confident that a guaranteed price for wheat would induce farmers in Wales to grow more wheat both by growing it more intensively and by breaking up grass land. The first essential was a guaranteed price. He preferred that method to a tariff. The principal crop in Wales, however, was oats, and Mr. Edwards considered that a guaranteed minimum price for oats, which he thought should be placed at 18s. a bag (or 27s. a quarter) would be more valuable in Wales than a similar guarantee for wheat. This amount would not, however, prove a great inducement to farmers to plough up grass land unless there was a fall in the price of milk and fat lambs. But if the security given to the farmers were sufficient, a good deal of land which used to grow cereals and was now devoted to dairying would be brought back to arable cultivation. The land on the hills was often tough and would need careful treatment, but with the use of lime there was no reason why it should not be again cropped with cereals. In his own district there was a lime kiln, but very little of the lime used locally came from that kiln, owing to the prohibitive price charged. A considerable saving in coal could be effected if farmers would co-operate and bulk their orders for lime; the saving would reduce the price by 50 per cent. On the heavy lands lime was as good as basic slag, but a pound's worth of the latter went further than a pound's worth of lime.

153. Agricultural production in Wales was restricted owing to the shortage of labour. At present there was a great scarcity of cottages. The landlords could not be expected to erect them at the rents being paid for them; and the wages of the agricultural labourer were not sufficient to enable him to pay more than about £2 10s. a year in rent. The landlord should be encouraged by State loans to erect more cottages, and he should receive an economic rent for them. Most of the existing cottages were owned by the men living in them. When they were let the rent was from £8 to £10 a year for the cottage, a small garden and sufficient land to keep a cow.

154. In his district, Mr. Edwards said, the collieries were competitors with agriculture for the available labour, but men worked on the land for less than they would require underground. He had paid wages in excess of the usual agricultural wages and had secured the best men; cheap labour was not the best labour. The shortage of men previous to the War was caused, to a great extent, by the low wages paid. At the present time the scarcity of labour was so serious that a rapid reduction in the arable area was being made. It was impossible to convince the Welsh farmer that he would be left with sufficient labour during the rest of the War to work his land, and he was consequently putting some of his land down to grass. He felt that the only solution of the labour difficulty after the War was a minimum wage; but there were great difficulties in this proposal. Some men at 15s. would be dear as compared with others at 25s. The value of men varied greatly.

155. Mr. Edwards was not much impressed with the danger that as a result of a minimum price being granted by the State, landlords would raise rents; it was not a simple matter under the Agricultural Holdings Act for a landlord to raise rents. From the tenant's point of view annual tenancies were better than leases. Large farms were lower-rented than small ones. The large hilly farms were not productive unless a farmer had capital, and the rents on some of these farms hardly paid the owners for the cost and upkeep of the buildings. To increase the production on most farms, further capital expenditure on the part of both landlords and tenants would be necessary. It would be only reasonable for the landowner to charge an enhanced rent for his additional outlay. Some old-fashioned farmers had a fear of farming too well because it might result in an increase of rent; that feeling was, however, dying out. What farmers dreaded was that the farm might be sold over their heads. The Agricultural Holdings Act gave the farmer compensation only for the manures and feeding stuffs used during the previous two or three years, and this undoubtedly made farmers reluctant to put money into the land so as to get more out of it.

156. Mr. Edwards said that ever since he had been farming he had noticed a tendency towards improved methods. One good farmer in a district would have a remarkable influence over the farming of the whole neighbourhood. Lack of capital was the most general cause of indifferent farming. A reduction in the size of the farm would be one solution of this difficulty, but would undoubtedly cause a great deal of friction. In Mid-Wales there was a large area of almost worthless sheep runs, producing very little food. Before attempting to improve such land he would prefer to take in hand some of the better land at present in cultivation, the productiveness of much of which could be greatly increased by drainage.

157. At present there was no co-operative organisation in his district. He was, however, a believer in co-operation, and thought that it would give very beneficial results. He looked to education as the principal method of increasing agricultural production. Farmers in Wales were great believers in elementary education, but were not yet convinced of the advantages of technical agricultural instruction.

158. On the subject of the relative productivity of the large and small farm, Mr. Edwards said that he had no doubt that the large farm was the more economical to work. In Wales the small farms were very badly equipped with implements. A man farming three to five hundred acres could afford to buy the best labour-saving machinery, his fields would be large, and horses could do more per day on his farm than on a small farm. On the other hand, and he considered that the ideal arrangement was to have holdings of different sizes. The small holdings and allotments were essential to the success of the large farms, as they brought labour. He agreed that if his own farm were subdivided into four holdings, the amount of labour employed on the land might be increased, but he said that if additional buildings had to be erected for the new holdings, the increase in rent which would be necessary would be greater than the land could possibly stand.

159. Subsequent to attending before the Sub-Committee, Mr. Edwards sent us to the Secretary a memorandum revising the views he had expressed in oral evidence on the subject of the methods by which increased production could be effected. In this, he stated that as of the great bulk of farmers in Wales did not sell off the farm the grain they produced, any the payment based on sales would benefit only a few farmers, and those not the best. On the other hand, if payment were based on the quantity produced, whether sold or not, it would be necessary to employ a large number of officials to estimate the production on each farm. A bonus based on the additional acreage of arable land would result in a large area of unsuitable land being brought under the plough and thus increase the area under tillage without a corresponding increase in the production of food. In his opinion the best scheme would be to supply farmers with good reliable manures, if possible below cost price—the amount supplied to vary with the acreage ploughed.

160. In the memorandum referred to, Mr. Edwards expressed the view that the best policy for the future was not so much to induce a large increase in the area ploughed, as to increase the produce on the area already under tillage, laying the land down on each occasion with a first-class seed mixture.

161. Mr. Edwards also sent in to the Sub-Committee an estimate of the cost per acre of ploughing upland pastures in Wales based on pre-war prices, together with an estimate of the income obtainable from the crops grown. For this purpose he took the cost of a four years' rotation, the crops being oats, oats, roots and barley. The total cost during the four years was estimated as being £29 18s. and the return per acre during the same period as £28 15s., thus resulting in a loss of 23s. per acre in the four years, to which should be added interest on capital and the cost of maintaining the occupier of the land and his family. On the other hand, the land laid down to pasture at the end of the rotation would be considerably improved and could carry for some years a heavier stock.

PRINCIPAL W. G. R. PATERSON

(West of Scotland Agricultural College, Glasgow).

Agricultural Education.

162. Principal Paterson, who, previous to being appointed Principal of the College over five years ago, was a county lecturer on the staff of the College, said that the College was dependent on Government funds and fees for its income. It was fairly well equipped as colleges go, but he would like to see better provision made for special research in connection with agricultural problems of economic importance arising in the area served by the College. If farmers asked for help and advice on any specific point and the staff could not assist them, they lost confidence in the college. He also advocated the devising of a sound scheme for placing within the reach of all farmers such information and expert advice as would enable them to make the very most of the land they farm, either in the way of raising crops or producing milk, beef, mutton, bacon, &c. This could be best achieved by developing the work at present carried on through the county organisers and instructors. He considered it highly desirable that a substantial reduction of the area at present served by a single instructor should be made, so that greater individual attention could be given to the farmers in that area. For this purpose the West of Scotland College could profitably employ at the present time double their existing staff of lecturers. He also suggested that a considerable increase should be made in the number of demonstration centres, so that farmers and others might have an opportunity of seeing what might be accomplished in their own district in the way of increasing production, and thereby be encouraged to adopt the most progressive practice. He would like to see at least one demonstration area in every county. The development of agricultural education along these or similar lines would have a marked effect in increasing the production of food. There was a noticeable change in the attitude of farmers towards the advisory work of the College. Only a few years ago the county lecturers had to press their services on farmers, now farmers sought them. They also took great interest in field demonstration work, and travelled long distances to see the demonstration crops.

163. As regards the education of the boys who are to become the farmers of the future, Principal Paterson said that the first requirement was a good general education as individuals, not as farmers. There was a great need for more suitable courses than were at present available, both at the elementary and the continuation school. He suggested that continuation courses carrying lads on from the age of 14 until they reached 17 should be provided, with a more direct bearing on agricultural work. The pupils would be engaged in practical farm work during the day and attend classes for two evenings or more a week, or for a short winter session, as was found to be more suitable. After that age agricultural education proper would begin, either at a central institution or by means of local classes conducted by the county agricultural instructor. He thought it a mistake for a boy to start technical agricultural instruction until he was old enough to put what he had learned into immediate practice. A farmer would not usually adopt a suggestion from a boy of 15 or 16 on, say, manuring, but if a student was 18 or 20 years of age his father would usually give him facilities for testing on the farm the information he had been gaining at the college or class.

Influence of Agricultural Education upon Production.

164. As an example of what could be done to increase production, Principal Paterson gave particulars of a farm taken by an ex-student of the West of Scotland College. It consisted of about 500 acres, of which 200 were pasture and 300 under a long rotation. In ten years the stock carried had been increased as follows:—Cows from 60 to 90, other cattle from 85 to 137, pigs from 50 to 75. The number of sheep had also been increased. In 1906 grass parks costing £50 per annum had to be taken to provide sufficient grazing for the stock then carried; in 1916 the grazing was so much improved that the increased head of stock could be kept at home and the grazing of the clover lot, which brought in about £75 per annum. The stock-carrying power of the farm had been raised by fully 60 per cent. The yield of the oat crop had been raised in the ten years by 15 bushels grain and 8 cwt. straw per acre, and other crops in the same proportion. Another example of how production could be improved would be seen from the results of the Dumfriesshire Demonstration Area. The variety of oats preferred by local farmers was Potato, which yielded an average production

of 57·4 bushels, while Victory averaged 71·8 and Beseler's Prolific 71·3. At the same demonstration area they had shown the benefits from sprouting late varieties of potatoes. In the case of the four varieties tested, unsprouted potatoes averaged 9 tons 6 cwt. 3 qrs., while the sprouted yielded 11 tons 13 cwt. 1 qr. Similarly, they had demonstrated the sound practice of applying to the oat crop a well-balanced dressing of artificial manures, by which it was shown that the increased yield repays the cost of the manure twice over.

165. Principal Paterson expressed the view that the present average yields of crops in Scotland are far short of the maximum profitable production, and that with a fuller dissemination of knowledge and special expert advice the crop production of Scotland could in time easily be increased by as much as 30 per cent. from the area at present under crop, and that without the "law of Diminishing Returns" beginning to operate. He considered it difficult to foretell what increase in production could be effected by increasing the area under the plough and yet entail no reduction in the amount of meat and milk, but was of opinion that production might be increased by at least a further 20 per cent. by the adoption of such methods as—shortening the rotation a little wherever practicable (*e.g.*, six years instead of seven); breaking up some of the land at present under pasture; draining and bringing under cultivation much land at present almost worthless; improving part of the lessened area under pasture by manuring, draining or liming where required; by more careful selection of grasses and clovers for rotation purposes; and by the use of Wild White Clover where it is likely to prove specially successful.

166. Mr. Paterson gave an example of the improvement of very inferior pasture which had been carried out in the College area under the advice of the staff. The work of reclamation began in 1910, at which time the land was of the nature of very inferior pasture, valued at about 5s. an acre. Up to the present time 87 acres has been fully reclaimed and a further 44 acres are in process of being reclaimed. The cost of reclaiming has been between £16 and £17 per acre, of which about two-thirds was incurred in draining and levelling. This sum did not include any expenditure on additional buildings. The fully reclaimed land is now valued by the tenant and proprietor at 30s. an acre. The yield of oats obtained on the reclaimed land had averaged 45 bushels per acre. This included a yield of 15 bushels obtained in the first year of reclamation. Yields of other crops were:—Turnips, 27 tons per acre; potatoes, 16 tons, and hay, 2 tons. The stock-carrying power of the farm had greatly increased, 40 extra ewes being kept and the cattle stock being increased by one-third.

167. The witness advocated breeding and feeding stock to secure earlier maturity, particularly with cattle and sheep for beef and mutton purposes. He read some figures giving age, average weight and average daily gain in live weight of cattle and sheep exhibited at the Smithfield Show during the ten years 1902-11, and urged that the benefits of early maturity would be a great saving in food fed to stock, and a greatly increased supply of meat, because of the quicker turnover that would be possible. He also urged the selection of dairy cows according to constitution and milk production. He considered there were great possibilities in developing pig breeding and the production of bacon, and advocated a considerable extension and improvement in poultry-keeping. With regard to poultry-keeping, Principal Paterson gave particulars of the results obtained on Demonstration Poultry Crofts in the Islands of Tiree andIslay. The fowls and houses were provided by the College but ultimately became the property of the crofter. The poultry were fed and managed on lines laid down by the College experts. In Tiree, where the number of birds was 36, the average number of eggs laid per bird for a period of twelve months was 192, and the profit per bird, after paying for all food consumed, but exclusive of cost of attendance, was 11s. 7d. In Islay, 32 fowls laid 4,691 eggs during the year and yielded a profit, exclusive of cost of attendance, of £14 6s. 2d.

168. Speaking of the possibility of increasing the production of cereals in Scotland, Principal Paterson instanced the oat crop. He said that climate was frequently the limiting factor, and unfortunately the one over which the farmer had no control, but much could be done to increase the yield by a judicious change of seed when required and by treatment of the seed previous to sowing, particularly for prevention against such diseases as Smut, &c.; by wider cultivation of varieties noted for their grain-producing powers; by a more general and also a more liberal use of well-balanced artificial manures, and by earlier sowing where that is practicable. Field trials show that the adoption of one or more of these methods leads to a very great increase in yield, and the same methods would apply in great measure to the wheat and barley crops.

Other Factors affecting Production.

169. Principal Paterson said that often farmers who were convinced of the advantages of adopting improved methods were unable to do so owing to their financial position. This applied particularly to the smaller farms. A good scheme of agricultural credit was, in his opinion, a very pressing need. Farmers in many cases do not care to apply to the existing large banks for loans and consequently obtain long credit from manure merchants, &c. Agricultural co-operation could also with advantage be considerably developed. The West of Scotland College had, however, not thought it wise to connect itself with co-operative societies. The agricultural depression had resulted in a great deal of land in Scotland which had been devoted to cereals being put down to grass. It also reduced the sheep stock although there had been an increase in pasture. He did not think it was possible for farmers to get the most out of their land unless they were given some security against a fall in price such as occurred in the period of depression. With regard to the method by which such security

should be given, he thought that a bonus per acre would be better than a minimum price. He would safeguard the interests of the State by requiring each farmer applying for the bonus to crop his land with a certain minimum proportion of cereals, and payment would be made only in respect of the area in excess of the minimum.

170. The witness considered that the great shortage of cottages for married men in parts of Scotland made it difficult for farmers to maintain a full staff. In many cases, as cottages got out of repair they had been allowed to remain empty. This difficulty placed a premium on the employment of single men. He thought the average wage paid to farm servants was too low before the War. Farmers generally would, in his opinion, be opposed to minimum wage legislation.

171. With regard to the relative productivity of large and small farms, Mr. Petersen said that he thought that large farms, on the whole, produced more per acre than small, but that there was no reason why a small holding should not produce as much in proportion as a large farm, though it would be at greater cost.

10th Day, 21st November, 1918.

MR. C. BRYNER JONES, M.Sc.

(*Agricultural Commissioner for Wales*).

172. Mr. Bryner Jones is the Agricultural Commissioner for Wales under the Board of Agriculture and Fisheries, and, in that capacity, acts as Chairman of the Agricultural Council for Wales. He is also honorary Professor of Agriculture at the University College of Wales, Aberystwyth.

Land Tenure in Wales.

173. He stated that, while not desiring to discuss the land question generally, he desired to draw the attention of the Sub-Committee to an example of the kind of condition imposed upon tenants by landowners which must be harmful to production, and tend to discourage the tenant from making the best use of his land from the national standpoint. An added clause in a revised agreement which the tenants on a certain Welsh estate were now asked to sign read as follows:—

"Should the Sanitary Authorities for any reason condemn the house or buildings, the tenant undertakes to either satisfy the Authorities, or quit and deliver up the holding, if required by the Landlord to do so, within six months of the Authorities' notice to repair being received."

If the tenants refuse to sign this clause they must quit their holdings. In the event of the tenants agreeing to sign, the effect would be either that the Sanitary Authorities would be prevented from taking any action at all, or if they did, the tenants would be forced to adopt one or other of the alternatives set out in the agreement, which, in his opinion, were harsh and even unreasonable. If any of the tenants left their farms in consequence of their refusal to sign the agreement, Mr. Bryner Jones stated that they would find it exceedingly difficult, if not impossible, to secure other farms under present circumstances. This consideration, together with the remarkable attachment to their holdings which is so frequently shown by tenants, would have the effect of inducing many of them to comply with conditions of a very unreasonable kind rather than leave. If any of the farmhouses were condemned by the Sanitary Authorities, and the tenant, having signed the agreement, chose to quit rather than undertake the repairs, experience led to the belief that the house and buildings would be allowed to fall in, and the land let with adjoining farms. Mr. Bryner Jones admitted that the case under notice was exceptional, but he thought it opposed to the interests of agriculture as an industry whose welfare is a matter of national concern, that it should be possible for conditions such as those referred to to be imposed upon tenants, to whom all the other ordinary conditions of farm tenure, without any modification, were made to apply.

174. Mr. Bryner Jones referred to the Royal Commission on Land in Wales which sat in 1893 and 1894, and said that that enquiry had undoubtedly had the effect of bringing landowners and tenants in Wales into closer relationship. Previous to 1894 feeling between these two classes was not of the kind that might be expected to lead to the best energies of the tenants being put into their work. The chief grievance at that time was as regards rent and insecurity of tenure. There had been a much larger average increase in rents in Wales before the agricultural depression than in England, and during the depression rents were not reduced in Wales to anything like the same extent as in England. In a large number of English counties rents during the same period were reduced. During the last ten years complaints as regards excessive rents were much less frequent. Mr. Bryner Jones considered that in the majority of cases rents in Wales were not too high now although relatively higher than in England, but he felt that the sympathy existing on many estates in England between landlord and tenant was frequently absent in Wales, and he suggested that if it were the

declared policy of the State to prevent rents being increased out of proportion to the rise in the value of agricultural produce, tenants would feel that their interests were safeguarded and that the State was showing sympathy towards them.

175. In reply to questions by members, Mr. Bryner Jones said that the action of the owner in the particular case to which he had called attention could not be accounted for by the fact that the houses or buildings were situated in unsuitable parts of the holdings, and that it would be better, from a sanitary point of view, that they should be condemned. A fact which had a considerable bearing on the question of rents was that the population in many parts of Wales was very largely, or even entirely, Welsh speaking. This limited the farmer's mobility, and the strong attachment for the soil felt by so many Welsh tenant farmers tended to increase competition for farms and thus to raise rents. Landlords had, in many cases in the past, been very ready to take advantage of this tendency, with the result that in general the average level of rents in Wales was higher than in England. It was on the small estates rather than the large that rents were high. He suggested that it would be in the best interests of agriculture if tenants could refer to an impartial body such as the Board of Agriculture the question of the rent charged for a holding, and if this body could negotiate between the landowner and tenant. He further suggested that where a landowner was, through financial reasons, unable properly to equip his estate or to effect repairs, the State should have power to take over the estate at a fair valuation. On a number of farms not only the dwelling-house but the farm buildings were in such a bad state of repair that it was impossible to expect the farmer to make the best use of his land, yet it was useless to ask the owner to carry out improvements, because he could not afford to do so.

Agricultural Education in Wales.

176. Mr. Bryner Jones stated that the first measures for providing a scheme of agricultural education for Wales were taken in 1889, when the agricultural department was established at the University College of North Wales, Bangor. A similar department was established at Aberystwyth the following year. As early as 1875 the University College of Aberystwyth had tried to make arrangements for agricultural education by instituting courses of lectures to teachers, but officially recognised schemes came into existence first in 1889 and 1890. The University Agricultural Departments in Wales were intended chiefly to serve students intending to pursue the higher courses of instruction, such as for the degree in Agricultural Science, and many of them qualified as instructors. Both Colleges also undertook a large amount of extension work, which is now known as "Farm Institute" work. The Colleges were for several years entirely responsible for the agricultural education provided in 11 out of the 13 counties in Wales. A considerable number of students received instruction in these two Colleges throughout the year; there was also a great deal of demonstration work, local classes in agriculture, horticulture, dairying, &c. The agricultural departments were entirely dependent for their income on grants from the Local Authorities and grants from the Board of Agriculture. In Glamorgan and Monmouthshire separate schemes for agricultural instruction had been for many years in operation and entirely managed by the Counties. In Monmouthshire, where the present Director of Agricultural Education had been at work for about 28 years, particularly successful work had been accomplished.

177. When the Farm Institute scheme came into operation in 1912 an arrangement was made by which the areas previously attached to the two University Colleges should remain the same. While it was expected that a great development would take place, it was thought that the supervision should remain the same. Every county in Wales, with one exception, had now appointed jointly and separately a county organiser. In 1912 there were only four such officers. The aggregate expenditure by the counties alone in 1914-15 was about £12,000. In addition there was considerable expenditure on the part of the Colleges, referred to later. The actual educational work performed through the county staffs was very much the same as is carried on in England. Two Farm Schools, one in Carmarvon and one in Monmouth, had been established. The schemes in the counties were generally controlled by a sub-committee of the County Education Committee.

178. With regard to the two agricultural departments themselves, they were in receipt of the usual grant from the Board of Agriculture. Each College had a farm attached to it. The staff consisted of a Professor of Agriculture with one or two assistants, a permanent lecturer in agricultural chemistry and agricultural botany, and since 1912 a special grant had been made to each College for the appointment of advisory officers in chemistry and botany; in addition to these officers a live stock officer had been attached to each department in connection with the Live Stock Scheme. The whole country was divided for live stock purposes into two areas, one going to Bangor and the other to Aberystwyth.

179. With regard to future development, Mr. Bryner Jones said that the whole question revolved itself into one of finances. In order to secure efficiency and development, the grant to the agricultural departments of the two Colleges should be very largely increased. The Welsh Colleges had no source of income apart from the Government grant and the students' fees, which were very low, and the small grant-in-aid which had been made by the Local Authorities since 1912, based on a percentage of their own expenditure. The average expenditure on agricultural education in the counties amounted to less than £1,000 a year, and a grant of 5 per cent. of this sum was the only payment which Local Authorities made to Bangor and

Aberystwyth. The Residue Grant being devoted to intermediate education, there was no local source from which the College could derive an income in Wales, whereas in many counties in England the whole cost of the agricultural instruction could be met out of the "whiskey money." Mr. Bryner Jones expressed the hope that the result of the enquiry by the Royal Commission now sitting on the University of Wales, would be to develop the facilities for agricultural education of university standard. Under the Farm Institute Scheme the grants paid by the State in respect of lower grade agricultural education were on a fairly generous scale, but some better scale of assistance was desirable towards education of the highest type.

180. In reply to supplementary questions, Mr. Bryner Jones said that the demand for agricultural organisers was so great a few years ago that there were not enough fully competent men available. The men appointed had, however, on the whole done satisfactory work. The attitude of the Welsh farmers was distinctly sympathetic. The College at Aberystwyth had organised for the last twenty years short winter courses of instruction at the College. These had been attended annually by from 35 to 60 students. These men were now to be found all over South Wales, and they were the men who were always ready to assist in any scheme of local development or improvement. On the whole, Mr. Bryner Jones considered that a centralised scheme of agricultural education such as obtains in Scotland, and to some extent in Wales, was preferable to one in which each individual county authority was free to do as it wished, but he desired to add that where the county authorities were progressive, the need for a centralised scheme was less.

Captain (now, Sir) BEVILLE STANIER, M.P.

(Chairman of the British Sugar Beet Growers' Society, Limited).

181. Captain Stanier said that the questions on which he proposed to offer evidence were:—Is there a case for State intervention with respect to the establishment of the Beet Sugar Industry in this country; and if His Majesty's Government decide so to intervene, what is the most satisfactory way in which such intervention should take place to effect the purpose in view? He thought that it would be generally admitted that the stage of technical investigation had been passed and it had been proved that sugar beet could be successfully grown in this country, and that the sugar-content of home-grown sugar beet was equal, if not superior, to that of foreign-grown beet. The question, therefore, that still needed investigation was whether sugar can be produced from beet at a profit, if a price be secured for the grower (say, a minimum of 23s. per ton f.o.r.) which will compete with other crops under normal conditions. The sum of 23s. had been arrived at by the Sugar Beet Growers' Society on the basis of the low yield of 12 tons to the acre, which would return about £14. The cost of cultivation being £9 to £10 per acre, a balance of about £5 would be left to the farmer, apart from the value of the leaves and other by-products. Captain Stanier thought, from his own experience, that the value of the leaves was not less than £1 an acre and other by-products 10s. per acre, thus making a total profit on the basis he had assumed of £6 10s. 6d. per acre. Asked for details as to the cost of cultivation, Captain Stanier offered to furnish a memorandum on this point.*

182. Captain Stanier said that his Society were of opinion that the only means by which it could be ascertained whether sugar could be profitably manufactured from home-grown beet was by an actual trial, in the first instance, on a complete commercial scale. He said that the investing public would not make such a trial, because they had no guarantee that they would have an adequate and regular supply of beet for the factory. On the other hand, farmers will not guarantee a supply in advance of a factory being erected. Even presuming that there was a factory with a guaranteed supply, the farmers would be able to refuse supplies at the expiry of each guaranteed period unless a price fixed by them was paid. The only solution of this difficulty was, in the opinion of the Society, that the factory should have its own factory farm to provide, during the initial period, the necessary supply to the factory, and during the following years an assured supply to secure a fair price. Moreover, such a farm would prove an object lesson to the district in high farming on an extensive scale, and would demonstrate how the by-products could be disposed of to the best advantage. Captain Stanier considered that if a trial were contemplated by means of a factory with its own farm there was still no incentive to investors, in view of there being no actual data available to enable them to determine what would be the probable dividends upon capital. Such investment must, therefore, be expected to be made only by wealthy persons prepared to risk the loss of their money in the national interest, or by persons led to invest by optimistic representations in public prospectuses of possibilities which cannot be based on facts as ascertained in this country. He did not consider that the dividends earned abroad would be any guide to the

* Captain Stanier subsequently sent to the Sub-Committee a memorandum explaining that the figure 29 7s. 3d. was given in the "Journal of the Board of Agriculture" for February, 1915 (page 385) as the average cost of production on the farms during the years 1912, 1913 and 1914. In the witness's opinion this would now be £10. In the Board's Report on Experiments in 1911 (Cd. 6182, page 18) the cost of the experiments was given as £10 10s.

In 1912 Captain Stanier's crop cost:—Ploughed (twice), £1; Harrow (3 times), 10s.; Drill, 1s. 6d.; Hoeing, 2s.; Lifting, 2s. 6d.; Curing to Farm Building (quarter of a mile, same distance as to station), 12s. 6d.; Curing and Sowing Artificialists, &c.; Artificial Manures, £3; Seed (12 lbs. at 7d.), 7s.; Rent, Rates and Taxes, £1 15s.; Total, 29 7s. 3d.

profits likely to be made in this country. In Holland, one big factory paid 18 per cent. in 1912, and in Germany, dividends of 20 per cent. and 30 per cent. were known. But the investing public required particulars of the prospects of the industry under conditions which obtained in this country, and he therefore suggested that if it was in the national interest that the industry should be established, the State should reduce the risks of such investment to that of ordinary normal enterprise. In the absence of State assistance, Captain Stanier thought that it was more than probable that the favourable opportunity now presented, when the dependence of the consuming public upon German sugar has been so fully demonstrated, would go by default. On the other hand, the problem on present information was, in his judgment, sufficiently conjectural as not to warrant the immediate laying down of a comprehensive series of factories involving an outlay of many millions of money.

183. If the Government decided to arrange for the trial which he had suggested, Captain Stanier explained that State assistance could be given only by one of two methods. Either the State must itself, through a Department of His Majesty's Government, build, maintain and control factories; or it must agree to make advances by way of grant or loan to a separately incorporated body on the basis of a partnership between the investing business public and the State. Of these two methods Captain Stanier considered the second the better policy, but if the Government would not adopt that method, his Society would welcome direct State action on the lines of the first method he had described, rather than that there should be no trial at all of the possibilities of the sugar beet industry in this country.

184. Captain Stanier sketched out the conditions with which a registered body should comply, if the Government decided to make use of such an agency to carry out a trial, adding that the British Sugar Beet Growers' Society fulfilled the conditions which he would adumbrate. The society or company should, he said, be national and disinterested in the manner of its inauguration, and should not trade for profit-making purposes. It should raise its capital by loan, instead of by shares, such loan capital carrying a fixed rate of interest. The loan capital should be contributed partly by the investing public and partly by the State, and each class of loan should rank *pari passu*. He said that the rate of interest to be fixed for loan capital would depend on the money market at the time. He thought, however, that even at the present time a certain amount could be attracted by the offer of 6 per cent. He suggested, but said that the point was not of great importance, that the relation of the State capital to the individual capital should define the relationship between the members of the committee appointed by His Majesty's Government and those elected by the investors. Captain Stanier explained that his Society would be willing to raise one-half of the capital if the State would contribute the remaining half. No loan capital would be repaid until the State loan had been returned in full. The shares of the company should, in his opinion, be of a nominal amount not permitted to earn any dividend or interest, and simply denoting membership. Each loan-holder should be entitled to one share to exercise voting power.

185. Captain Stanier suggested that during the experimental period of ten years, the State should guarantee the payment of loan interest by providing funds to meet the difference between the current expenditure, including the fixed interest on loan capital, and the income. If there was an excess of income over expenditure, such excess might be used to repay the State loan. At the end of the ten years, a public issue of shares might be made, if the State wished to recall its loan, so as to redeem such part of the loan capital as remained of the State loan, and also to redeem the loan capital held by the general public either by repayment or conversion into shares, after which the State guarantee of loan interest would cease. From this point the shareholders should be permitted to share the profits thereafter made. The witness emphasised the desirability of eliminating, so far as practicable, all possibilities of commercial failure in a State-aided enterprise. Therefore the State assistance outlined above should, he urged, be additional to the existing rebate between Customs and Excise Duties (namely 2s. 6d. per cwt.), and he considered that the enterprise should be assured that not less than the present rate of rebate would be continued for at least 10 years, or until 50,000 tons of manufactured sugar were being annually produced in this country.

186. Captain Stanier said that once the registered body had built its first factory and commenced operations, a growing confidence in the commercial possibilities of the industry would be the result. It should be the duty of the registered body to lead opinion in the various agricultural counties and weigh the merits of contemplated ventures. The registered body should not only be in a position to provide information, but to provide administrative help. He said that experience in connection with the factory at Cantley had shown that it was necessary to provide a considerable amount of technical assistance for farmers who undertook to grow beet, and that for this purpose a body of expert advisers would be necessary. In most districts the introduction of beet would result in an improvement in the method of cultivation generally; this, he understood, had been the experience in Germany; it certainly had in Holland.

187. In reply to questions by members, Captain Stanier said he considered that a fully-equipped factory would cost approximately £200,000, and that, with the purchase price of the minimum area of land necessary, would bring the total capital required up to £250,000. If the State contributed £250,000, he thought it probable that the Society could raise an equal amount. In the past, the terms of the Brussels Sugar Convention and the limitations imposed on the Development Commissioners by the Development Fund Act had prevented the State adopting a scheme such as he had advocated. To carry out a test satisfactorily it was necessary that a company should aim at making a profit, but the Commissioners could not assist a profit-making company. He considered that for a few years the factory would not be likely to be

worked at its best; it would be necessary to gain experience. His Society had an actual estate in view, the purchase of which was under consideration by H.M. Government. The factory site in question was a very suitable one, facing south with excellent communications, surrounded by two railways, and a navigable river on the third side. The land sloped down to where it was proposed to erect the factory, and the roots could be brought down by a light railway. Large quantities of water were required for washing the beet, but it was necessary to treat the discharge from the factory as it had proved poisonous to fish. The object of having land under the control of the factory was so that at least a minimum quantity, say, 40,000 tons of roots, could be grown. The smallest profitable area was 3,500 to 4,000 acres devoted annually to roots. Beet could be introduced twice into a five-course rotation. Captain Stanier's experience was that farmers needed a lot of convincing that sugar beet would prove a profitable crop. They overlooked entirely the indirect benefits which they would obtain, and thought only of the price offered for the beet. Farmers were usually unable to compare the cash return they would obtain for beet with the value of their present roots, such as mangolds, as this latter crop was not sold off the farm. Farmers were also in most cases in doubt as to how they could maintain their stocks if they grew beet instead of their present roots. The sugar beet industry would be one of the best methods of re-populating rural districts. A factory would employ an additional thousand hands. For two-thirds of the year the factory would be at full work, and then the machinery would have to be taken down and cleaned; during that period the part-time employees would be released for work on the land.

188. Captain Stanier stated that, in his opinion, beet could be successfully grown over two-thirds of England and a great part of Wales. A factory needed an area of 14-20,000 acres within easy reach. To grow beet it was desirable for the climate to be neither too dry nor too wet; plenty of sunshine was necessary to raise the sugar-content. If the pioneer company he had advocated proved successful, he believed that many other companies would be formed and that by their influence an enormous improvement would be brought about in British agriculture. A certain amount of money had already been subscribed for the proposed company. [The witness handed in a confidential list of guarantors, &c.] He had heard the objection that the introduction of the sugar beet industry into the United Kingdom might result in injury to the Colonies, but he thought that, in view of the vast consumption of sugar in this country, this was a mistaken view. The reason that farmers in the Eastern counties had lost interest in the cultivation of beet was, he thought, very largely due to the unbusinesslike methods which had been followed in connection with the factory. Asked whether he would not favour the purchase of the Cantley factory rather than the erection of a new factory, as he had suggested, Captain Stanier said that that was a useful idea, but it would need careful consideration and he could not give a definite reply.

11th Day, 22nd November.

Mr. E. J. RUSSELL, D.Sc.

(Director of Rothamsted Experimental Station, Harpenden.)

Influence of Research on Agricultural Production.

189. Dr. Russell said that an organised system of research was one of the pillars on which agricultural development must rest. It alone afforded the basis of a sound rural education. Without a good rural education, he did not think that young men and young women would remain in the country. Agriculture does not afford the opportunities of amazing wealth that seem to be open in the cities. As a counter attraction, therefore, the young men and women must be trained to see something of the wonderful interest of country life. Without education farmers could not take advantage of improved methods, nor could they understand the meaning of demonstration plots. Dr. Russell emphasised the danger which resulted from men carrying away from single lectures, or a single course of lectures, ideas which they had only half grasped. Research was also indispensable for furnishing information needed by agricultural experts, advisory officers, administrative officers, inspectors and other officials. Farmers were often sceptical about these men, and it was, therefore, essential that they should be provided with precise information. Research, Dr. Russell said, was, moreover, the only means of elucidating the principles on which improvements in agriculture could be based, and it was the quickest and most reliable way of testing improvements.

190. Dr. Russell then gave some examples of the assistance which had been rendered by scientific work in dealing with the problems of crop production. With regard to artificial fertilisers, he recalled that the manufacture of superphosphate was the result of a piece of chemical work; the use of nitrogenous manures was very largely developed by a piece of chemical work and the controversy which arose out of it; and the use of potash also was the result of scientific investigation. The production of new varieties of plants was also the work either of scientific workers or of men who intuitively followed correct principles and thus obtained useful results. The development of the sugar beet, for instance, from a plant containing only very little sugar had been controlled throughout on scientific lines; the production of improved varieties of wheat was another notable example of scientific work on these lines. Another branch of work in which research was proving valuable to agriculture was in connection with

the study of pests and diseases of plants with which the farmer himself could not deal, such as potato disease and diseases of fruit trees. Research was also valuable in detecting wastes and losses in cultivation, the study of the causes which produce them and of the conditions under which remedies may be found. As an instance, Dr. Russell referred to losses from manure heaps. It was always the custom to "turn" the manure heap so as to facilitate rolling till the late Dr. A. Voelcker showed that this procedure was wrong. Very few farmers could themselves lay their finger on the weak point of a cultivation process. There was a distinct waste in the ordinary processes of manuring. The only way of increasing the efficiency of these processes is by knowing exactly what is happening in the soil. A further object of scientific research, Dr. Russell said, was the study of obscure effects and conditions that greatly puzzle the farmer and impede the introduction of new methods. As examples of this, the witness referred to the so-called "seourging" effect of nitrate of soda, that is, the bad effect of nitrate of soda on soil under certain conditions. Until this was understood, it was impossible to say beforehand whether nitrate of soda was likely to do good or harm; now that the phenomenon is understood, it can be predicted with some certainty and also dealt with when it arises. Other instances were "soil sickness" and the occasional deleterious effect of sulphate of ammonia and nitrolim—fertiliser firms, recognising this, were now appointing trained chemists on their propaganda staffs.

191. Dr. Russell referred to the harm which was done by the prevalence of false ideas, mentioning, as examples, the bringing up to the surface of raw subsoil in the steam ploughing of the 'sixties, under the impression that it was the source of plant food, and the deep draining of four to five feet which was carried out in the 'fifties and 'sixties. He also said that in certain directions the assistance required by farmers would probably not be forthcoming until more scientific work was carried out, *e.g.*, methods of dealing with diseases and pests of animals and plants, and methods of increasing the efficiency of cultivation and manurial processes. He urged that fuller provision was needed for research work, especially to enable the Research Institutes to retain their good men. The institutes at home should, he suggested, be a training ground for the experts needed throughout the Empire, but this could only happen if the best men at the different stations could be retained as trainers.

192. In reply to questions from members of the Sub-Committee, Dr. Russell said that the present system of Research Institutes was very satisfactory so far as it went, but there was need of greater elasticity as regards grants, so as to permit of the salaries of promising men being increased. The scheme covered practically the whole field of research, with the exception of the study of machinery and implements, but it had only been in operation a few years, and there was great scope for developing the work of the different institutes. He favoured the establishment of sub-stations in connection with the institutes to test results under practical conditions. The station at Lea Valley had proved of great value to Rothamsted. The institutes, with the exception of Rothamsted, were dependent for their incomes entirely upon the Development Fund; less than one-half of the income of the Rothamsted Station came from official sources. Great Britain was a long way behind Germany, America, France, and, he thought, India, in the provision of buildings and equipment of research institutions, but the conditions of work in this country were very favourable and were often sufficient to attract scientific workers from abroad in spite of inadequate equipment. Dr. Russell said that the means of bringing the results of research work in this country to the notice of the farmer were inadequate. He thought that steps should be taken to bring men from the colleges, County Organisers, &c., for short courses at the research institutions, with a view to spreading new ideas. He encouraged local trials of results of investigations carried out at research institutes. He would not inavour, however, the introduction into this country of a system of annual reports of research stations which had resulted in America in the publication of reports of research work before it was completed. It was very desirable to stimulate research work at all higher institutions devoted to agricultural education, but research workers must be given a large amount of freedom to allow them to work at problems which appeal to them.

Methods of increasing the productivity of the land.

193. Dr. Russell said that one method of increasing production was to bring the poor farmer up to the level of the good farmer. This could not be achieved until the poor man was better educated. The following figures, however, indicated how much there was to be done in this direction:—

Produce of Crops in England and Wales.

Crop.	Yield per acre.	
	Average for ten years, 1904-1914.	Expected by Good Farmers.
Wheat	31.7 bushels	40 to 50 bushels
Barley	32.8 "	40 " 60 "
Oats	38.5 "	60 " 80 "
Potatoes	6.2 tons	8 " 10 tons
Mangolds	19.5 "	25 " 40 "
Swedes	14.2 "	12 to 15 tons in South 20 " 30 " North

194. Dr. Russell said that there was some scope for improving the yields even of the good farmers. There were certain old methods known to be good which had fallen more or less into abeyance, such as chalking, liming, and draining, and these might, with advantage, be developed. They could, however, be carried out better by a society or company formed for that special purpose than by an individual farmer who would have neither the knowledge nor experience necessary. Increased yields would also be obtained by the extended use of artificial fertilisers, of which an increased supply was very desirable; by the introduction of new varieties of crops better adapted to local conditions of soil and climate; by the improvement of cultivations. The last-mentioned method would require the closer study of what cultivation does. Testing stations are greatly needed for experimenting with new implements.

195. On the subject of drainage, Dr. Russell said that wherever the land which was drained in the 'sixties had gone down to grass, it might be presumed that the drains had been neglected. Before any considerable area of it could be recovered to arable, the drainage would require attention. Where the drained land had remained arable the drains were more likely to have received attention. In some cases the old drains were still working; in others they were too deep and the land was re-drained at a more moderate depth. In other cases the drains had ceased to act, but on cleaning out the ditches and repairing at places where they were blocked they sometimes started working again. On many well-managed estates some amount of tile drainage had been carried out continuously, but much less had been done in the last ten years than previously. In cases where the landlord provided the tiles and the tenant provided the labour, the work had often been badly done, no plan being prepared in advance, and no record kept to show where the drains had been laid. In the future, money may not be forthcoming for tile drainage, and Dr. Russell said that on much land mole drainage would be sufficient. Mole drainage was best on heavy lands with a fairly uniform slope and free from large stones. All the tile drainage then required was a main drain and a satisfactory outflow. The cost was from about £1 an acre, or if the farmer owned the necessary tackle, 10s. an acre. Dr. Russell said that probably no system of drainage would last while it was left to each individual to clean out his ditches or not as he pleased. He suggested that for a large area, in certain cases a whole watershed, a drainage authority should be established which would be responsible for the drainage in the same way as the county authority looked after the roads.

196. Dr. Russell said that there was very great scope for increasing production by readjusting the crops grown on the farms and extending those that produce most per acre. An analysis of the costs and returns of the various crops grown on the ordinary farm of 180 acres at Rothamsted showed that the risk of financial loss was greatest with the root crops, and least with the corn crops. The key to the situation seemed, therefore, to lie in the root or fallow break. The wheat crop might be regarded as the superstructure seen by the public but the root crop was the foundation on which it rested. On light lands the root crop was specially important because it alone furnished the necessary money for the cultivations. Potatoes at pre-war prices brought in £25 per acre while wheat only brought in £7.

197. In particular, Dr. Russell said, the ploughing up of a large area of grass land would greatly add to the aggregate output. In Great Britain the average proportion of permanent grass to arable is nearly 1·5 to 1; in Germany it is as 1 to 4, and in Denmark it is as 1 to 6. Probably 25 per cent. of the grass land could be ploughed up without decreasing the amount of available grazing, provided the remaining 75 per cent. was improved by mole drainage and basic slag. That process had been carried out on the farm at Rothamsted, and the grazing had actually been increased. Thus the conversion of grass to arable would not reduce the head of stock that could be carried, but might actually increase it. The factor which limited the number of cattle that could be kept on a farm was not the amount of grass but the quantity of winter food available. The addition he had proposed to the arable area would produce at least an additional three million quarters of wheat annually. This production could be increased by the use of spring dressings, which, at present, are not being used nearly enough. The witness estimated that by these methods alone it would be possible to raise the present seven million quarters of wheat to eleven millions or more.

198. Another method of increase was, Dr. Russell stated, the more extended use of motor ploughs. The great advantage of these implements, which were still in need of improvement, was that winter corn could be sown early, and work generally pushed forward. It was difficult to exaggerate the advantage of being forward with work in the spring, but in autumn the number of days on which ploughing could be done on heavy land was so few, that the use of a motor plough on these days was a great help to the farmer. Another means by which production could be increased was the introduction of new root crops, and their extension if they could be shown to yield a profit, for example, sugar beet, potatoes for alcohol, green crops for silage, marrow-stem kale, &c. Improvement could also be effected by catch cropping or continuous cropping and by lowering the cost of production.

199. Dr. Russell said that farmers generally did not believe that the technical methods of increasing production to which he had referred, would alone be sufficient to meet national requirements. Moreover, farmers could not afford to take the risk of increasing their area of tillage. This opinion was, in his opinion, well-founded, and it was necessary to diminish the risk. This could be done by the State guaranteeing farmers a minimum price for one or more crops. He found that many farmers did not think that present high prices would last, and he would, therefore, say that the conversion of arable into grass would not be stopped by present prices. Two years ago farmers would have thought 40s. to 45s. per quarter a very good price for wheat, but now they were afraid that the present level of wages would continue and they would probably ask for a minimum price of, say, 50s. Farmers would be greatly assisted by some means of

easier credit. If some crops could be converted into cash at once at some fairly uniform rate regardless of quantity, as was done in Denmark by the co-operative societies, or in South Africa in the case of mealies, farmers would be able to replenish their capital instead of having it outstanding for 12 or 14 months at a time.

200. It was also very desirable, Dr. Russell considered, to attract more capital to the agricultural industry, and in this connection he referred to the co-partnership scheme by Sir Richard Paget, and the proposal to establish large industrialised farms as recommended by Mr. A. D. Hall. Finally, Dr. Russell urged that it was necessary to create the fashion to improve land. In the great agricultural improvement at the end of the 18th Century this played a very important part. "The farming tribe," wrote Arthur Young, "is now made up of all ranks from a duke to an apprentice." Even the King himself went in for agricultural experiments, and wrote one or two articles on them in the "Annals of Agriculture." The force of example is very potent in the country, much more so than that of any State rule or regulation. The agricultural knowledge of the landowning class was not at present what it ought to be, but he saw signs of an effort on the part of many members of the class to improve their estates and set an example to others. The education of the landowner was also being looked after; Oxford and Cambridge and some of the schools were trying to bring about improvements.

201. Dr. Russell considered that an agricultural survey was badly needed which would show the possibilities of reclamation and of improvement. Such a survey would be the only means of obtaining a good working estimate of the extent to which agricultural production could be increased. He suggested that certain obstacles to agricultural improvements deserved attention, such as restrictive covenants, and the over-preserving of game. He also expressed the view that landlords should have better power to get rid of bad tenants.

202. On various questions which arose during the examination, Dr. Russell expressed the following views. It was highly desirable to increase the manufacture of all artificial manures after the War, and probably some of the munition factories could be used for this purpose. As a general practice it would not be desirable to use sulphate of ammonia as an autumn dressing; there were special circumstances connected with the price which made it desirable during the War. If gross land was going to be converted to tillage to any considerable extent it was very desirable to have local demonstrations to show the best way of doing it, as initial failure on the part of a number of farmers would have a very bad effect. He had never tried double ploughing, but thought it might prove a good method for preventing the weeds coming through. It was desirable to have a demonstration farm devoted to sugar beet; so far it had been grown over large sections of the country only in plots and it was very difficult to form a judgment from demonstration plots.

MR. JOSEPH FORBES DUNCAN.

(Honorary Secretary, Scottish Farm Servants' Union).

203. Mr. Duncan explained that the Scottish Farm Servants' Union was a registered trade union founded in June, 1912, and was open to all farm workers of both sexes, but the bulk of the membership consisted of ploughmen. At the end of October, 1916, there were seventy-four branches in the following counties in Scotland:—Inverness, Elgin, Banff, Aberdeen, Forfar, Perth, Fife, Stirling, Lanark, Dumbarton, Renfrew, Ayr, Linlithgow, Edinburgh, Haddington, Berwick, and Roxburgh. He said that the Executive Committee, which was appointed annually, consisted entirely of farm workers. The questions of Wages Boards and a Minimum Wage had been discussed at various times at meetings of District Councils and at the Annual General Meetings, but no definite policy had been adopted by the Union. The general opinion had been that legislative action had not been necessary or desirable. The Union had advocated the formation of Joint Committees between the farmers' organisations and the Union for the purposes of considering questions of wages and working conditions. Prior to the outbreak of war, conferences were held between various farmers' societies and the Union to discuss the introduction of a weekly half-holiday for farm workers, and in several instances recommendations were issued, some of which were adopted by farmers, more or less completely. On the 14th October, 1916, a conference was held between the Executive Committees of the National Farmers' Union of Scotland and the Scottish Farm Servants' Union, and it was agreed to recommend a scheme for Joint Committees of both organisations to discuss wages and working conditions, and to provide for a system of making engagements without the necessity of hiring fairs. A report of the proceedings was published in the "The Scottish Farm Servant" for November, 1916.

204. Mr. Duncan stated that the working staffs of the Scottish farms were engaged for either six months or one year, the engagements running from the terms at Whitensunday or Martinmas. Married men were usually engaged for a year, and single men usually for six months. In the West of Scotland married men hired for six months, and in Fife and the Lothians and Border counties single men engaged for a year. Each worker, Mr. Duncan said, on a Scotch farm had well-defined duties. These varied in the different districts and according

to the size and class of farms. Farm labour in Scotland, in his opinion, might be described as specialised and skilled. The ploughman took complete charge of his team and did his own stable work. In Scotland he had to be competent to do the whole of the work. Occasional labour had been steadily decreasing for a considerable time; it was now principally confined to the labour of women.

206. Mr. Duncan handed in a statement of the wages paid to ploughmen in the different counties in which the Union has branches, showing the wages paid prior to the War, and the wages for December, 1916. He explained that grievers, foremen, cattlemen, and shepherds generally received a wage higher than those earned by ploughmen. Male workers on Scottish farms, engaged under a contract of service, were in receipt of standing wages, no deductions being made for broken time or for holidays (generally four to six days a year), but wages were not now generally paid during sickness, although part wages might be paid, according to bargain. Piece work was hardly known on Scottish farms, except in the case of casual workers, or where, owing to shortage of labour, turnip thinning and turnip lifting might be paid for, as overtime, at piece rates. Overtime had become more general in the counties from Forfarshire southwards since the Union was formed. The rates varied from 6d. to 9d. per hour, the tendency being towards the higher rate. The hours of labour, Mr. Duncan said, were generally ten per day, in two shifts of five hours each, with a mid-day interval of one or two hours, except in Fife and Roxburgh, where the nine hours day was more general. In the winter months the working day had to be shortened to suit the shorter period of daylight. In addition to the hours stated ploughmen had to do the necessary stable work, which would add about 1½ hours daily to the above hours. There had been a tendency in the case of ploughmen towards a regular working week. The case of cattlemen presented some difficulty in this respect. A movement for a weekly half-holiday was inaugurated by the Union in 1913, and was becoming increasingly successful, when the outbreak of war led to its suspension. It had not been tried in the dairying districts, but the movement had been generally successful in Edinburgh, Linlithgow, and West Fife, and to a less extent in Haddington, East Fife, Perth, Forfarshire, and the West of Scotland. If men were required to work on the half-holiday they were paid overtime.

208. Mr. Duncan said that in the district north of Inverness wages were very much below the standard of the other counties, and were dangerously low, and the same was true of the extreme South West of Scotland. In the latter area, however, he believed the rates had increased greatly during the last twelve months owing to the competition for labour of the special munition industry created at Gretna Green. The wages for male workers in Scotland showed that, while the rates of wages for skilled workers were too low—especially in view of the long hours, and the arduous nature of the work—the earnings were not, in the opinion of his Union, such as to call for special legislative action either in the interest of the worker or the industry. Women's wages, however, he said, had always been scandalously low, and they had a legitimate claim for special treatment. If, however, State aid was to be given to agriculture, male farm workers would have a legitimate claim to special treatment. The form this would naturally take would be standard conditions of labour and recognised rates of wages. The difficulties of effecting these improvements were practical ones. In counties such as Haddington, where arable farming on a large scale was the rule, the enactment of a statutory minimum might, Mr. Duncan said, meet the case, as wages were fairly well standardised already, and there was no good reason for considerable variations, but in the other counties—and these were in the majority in Scotland—where mixed farming was the rule, the variation in work would render such a statutory minimum of little use to the workers, and would not meet the claims of the different classes of workers.

207. Nor could he see how any base rate could be established, which could be founded upon for the variations necessary, having any relation to the State aid given to the farmers. The technical difficulties of operating such a scheme, with the multitude of employers and the differences in the work on the different farms, would create such friction as to render the scheme unworkable. On the other hand, Mr. Duncan considered it important that the farmers should not be given security by the State, and the workers be left without any protection against individual employers, nor would it be reasonable to expect that groups of farmers would be left free to make extra profit out of any aid given by the State, by paying wages distinctly lower than those of their competitors. It seemed to him that the line of least resistance would be to require the farmers and farm servants to form Joint Committees for each area, and that these Committees should endeavour to agree to typical scales and should publish the same. Where complaints were made to the Committee that the wages paid by any farmer were below the typical scales agreed upon, and the complaints seemed to the Committee to be justified, efforts might be made by negotiation with the farmer and his men to get the differences adjusted. Their decisions should not have statutory force, but if it were found, after the lapse of a certain time, that the recommendations were not being generally accepted, experience might show that further powers were necessary. He believed, however, that the system would work with less friction than any more definite scheme would do, and that it would create less disturbance than any other method that could be devised. If such recommendations were issued, the workers could be trusted to endeavour to adjust their wages in direct negotiations with their employers, and the experience of their Union was that farmers were generally responsive to any such general movement.

208. Mr. Duncan said that there were matters other than wages which needed consideration. If the purpose of State assistance was to secure increased home production, the necessity for retaining a larger number of workers in agriculture would become urgent. In Scotland,

emigration in recent years had made the most serious drain from the agricultural workers, and not in the lowest paid districts only. An increase of wages alone would have little effect in stemming the drift. Shorter hours and increased leisure were more important. Housing conditions had also been a considerable factor. It was difficult, however, to isolate any single cause; there had been a complete disintegration of rural life. The system of engagement, with the contract for a lengthy period, and the fact that these contracts all expired at one time in each area, leading to periodic unsettlement, and upheaval, produced a condition of affairs which rendered a settled rural population impossible. The problem was one which required handling on broader lines than the mere adjustment of wages. Unless the parties most interested—the farmers and their workers—could be induced to make joint efforts to deal with the problem, Mr. Duncan felt that no machinery would be successful. The Joint Committees he had suggested would provide the necessary agencies for initiating such a movement to deal with the problems on sufficiently broad lines.

209. In reply to members of the Sub-Committee, Mr. Duncan said that the work of the Scottish Farm Servants' Union was mainly confined to the arable area of Scotland. Its work extended beyond the actual membership. The introduction of Saturday half-holidays was due to the efforts of the Union. When, after conference with farmers' representatives, a recommendation as to men's wages was issued, an amount for women was always included. Mr. Duncan said he was more hopeful of the results of the experiment of organisation among farm servants in Scotland now than he was two or three years ago. While the scarcity of labour during the War, had, no doubt, assisted the Union's efforts to raise wages, they had secured improvements which could not be put down to that cause. He much preferred voluntary methods of bargaining, and he foresaw great danger to trade unionism in the proposal to set up Wages Boards. He advocated that both farmers and men should be encouraged to rely on their own efforts to solve labour difficulties without outside interference, and he thought that the intelligence and good feeling on both sides were sufficient to work out a solution. He was in a minority among trade unionists in thinking that it would be dangerous to make membership of a union compulsory by the State before a workman could be given employment.

210. In reply to Mr. Roberts, Mr. Duncan said that the Union's fundamental objection to the setting up of Wages Boards was that the conditions of the farm workers in Scotland were not before the War nor at the present time such as to demand special assistance from the State. The only ground for intervention would be if farm servants were in a specially disadvantageous position. The Union felt that farm servants would obtain better wages by trade union methods than by means of State assistance, and he could not conceive of legislation bringing any improvement in the position of Scottish farm servants without their own organisation. If some form of assistance was to be given to the farmer, it would be desirable for the State to take measures to ensure that a share of the benefit should accrue to the workers and to secure an adequate supply of labour. For this purpose, however, it would be necessary to offer a wage which would attract labour, not merely a minimum wage. But he agreed that there might be good reasons for preventing farm labourers being paid wages as low as were being paid before the War in some of the counties in the south of England. Mr. Duncan felt, however, that in Scotland Wages Boards would be faced with very intricate work, and serious opposition from farmers. With regard to the question of giving security to the farmer, he considered that farm servants generally would not approve of a scheme, as they were of opinion that there was no need for it. Although some of the benefits of such a scheme might be obtained by the workmen, they were given to discussing proposals of this kind from the point of view of citizens rather than with regard to their own interests, and they felt that farmers were doing quite well without any guaranteed price. The scheme would, however, be made much more acceptable to farm servants if it contained an element of compulsion with a view to insisting on increased production.

211. On the subject of hiring fairs, Mr. Duncan said that the periodical rehiring created a feeling of unrest, and was, in his opinion, the biggest social question which had to be faced in Scotland. His proposals on this subject would, he said, amount almost to a revolution. The Union preferred that engagements should be from month to month. If the periodical upheaval could be stopped, it would, to a great extent, remove the present unsettlement. Farmers, however, were very opposed to shortening engagements, owing to the fear of strikes at busy seasons. For the last 80 years the Scotch farm servant had been getting more and more migratory—he had, at present, practically no place in the community at all. Mr. Duncan said he would like to see the social life of farm servants greatly developed. It would not do to copy the towns, but to re-create rural life. Low wages was not the most important factor influencing men leaving agricultural employment; the social condition was a far more potent factor. One of the reasons for married men leaving the country was that there was no adequate outlet for children in rural districts, and a man had either to split up his family, or move into the town and take a post as carter, or go abroad. Emigration was not, however, confined to country dwellers but was very noticeable in the towns.

212. Mr. Duncan said that the scarcity of cottages was a serious difficulty, especially in the North-East of Scotland. A single man had often either to leave farm service or remain unmarried owing to the impossibility of finding a cottage. An increase in cottage accommodation would be very beneficial, and he considered that the State, working through the local authorities, should erect new cottages.

213. With regard to agricultural wages, Mr. Duncan said that the general tendency recently had been towards reducing payments in kind and increasing cash wages, especially in districts close to industrial areas. Farmers had often shown reluctance to increase cash wages rather than perquisites, knowing that it was very difficult to reduce wages once a rise

had been granted. The Union were unanimously of the opinion that all wages should be paid in cash. The social standard of the men, Mr. Duncan said, was highest where payment was made in cash instead of kind. He would prefer that farm servants paid rent for their cottages, but he recognised the difficulty of getting a class who were accustomed to live rent free to pay rent.

214. Asked as to the prospects of farm servants in Scotland, Mr. Duncan said that in the counties where there were many small farms, a good number of the farmers had started life as farm servants. His Union would welcome any practical scheme for providing a "ladder" for farm workers, but the difficulty was to devise an efficient scheme. He was convinced that there was no real demand for smallholdings in Scotland; the applications received by the Board of Agriculture included only a small proportion from outside the crofting counties. Where smallholdings had been established in arable areas, the applicants had not come from the men on the adjacent farms, and outsiders had to be introduced. Most of the rural population in Scotland were not competent to manage a smallholding; moreover, the ordinary ploughman was not prepared to work at all hours of the night and morning. Mr. Duncan said that, as a son of a smallholder, he considered that successful smallholders had to be reared on smallholdings.

215. Labour in the rural districts of Scotland generally had been so scarce in recent years that it was practically confined to the men engaged by contract, and it was impossible at times of pressure for farmers to obtain extra assistance. He thought that after the War the shortage of labour would be still greater, as he could not quite conceive of town-bred men being employed on the land.

12th Day, 23rd November, 1916.

MR. G. BERTRAM SHIELDS.

216. Mr. Shields, who farms about 640 acres in the county of Haddington, said that one means of increasing agricultural production would be to raise the yield of crops grown on the present arable area. He considered that by shortening the rotation alone an increase of about 30 per cent. in the production of arable crops could be obtained, and that a further 5 per cent. increase would result from using only the best kinds of seeds; in the case of oats a much larger return per acre was obtained from the newer and more prolific varieties. He thought that a special reduced rate for the carriage of "seed" potatoes by rail would encourage farmers to grow from fresh seed. At the present time a lot of arable land in Scotland needed draining; on the majority of farms no effort was made to repair drains, and the heavy cost (about £24 an acre) prevented landowners from undertaking fresh drainage schemes. Mr. Shields emphasised the need of more expert advice being placed at farmers' disposal. He himself spent many hundreds of pounds each year on artificial manures, and would be glad to obtain the advice of an expert chemist as to its use. The Agricultural College at Edinburgh had a chemist on its staff, but Mr. Shields considered it would be of more assistance to farmers if a local demonstration area were started with a practical man at the head and a well-paid and thoroughly efficient chemist to advise farmers throughout the county. Such a demonstration area should be open to farmers on certain days, and lectures should be arranged on the subject of the experiments. He questioned whether the agricultural education at present being provided was on the right lines. The bulk of the pupils who took courses at the agricultural colleges never returned to the land, and many of them went out of the United Kingdom altogether. He considered that the Board of Agriculture should exercise more influence over the whole educational scheme of the country, so as to give the children of the countryside some knowledge of matters connected with rural life. Mr. Shields further suggested that many disabled soldiers would, with a little training, become useful with agricultural machinery, and as he considered that, in future, machinery would be much more used in farming than it had been in the past, he advocated that schools should be opened to provide disabled soldiers, especially those who had been recruited from the land, with instruction in agricultural mechanics.

217. Mr. Shields also considered that the promotion of co-operative buying among farmers would assist in increasing production. Up to the present, large farmers had not gained much advantage from the co-operative movement. He hoped that every encouragement would be given to the perfecting of the motor plough and tractor. In Scotland demonstrations had been held with the motor plough, and Mr. Shields said that it would prove of immense advantage to wheat production by enabling farmers to get their land ploughed in time. He suggested that it would be worth while experimenting to see if a motor draining implement could not be invented. Another method of increasing the production of arable land, Mr. Shields said, was the prevention of waste by disease, pests, &c. He said that spraying grain infected with charlock and spraying potatoes could in normal times be done at quite nominal cost. At present sulphate of copper, which was an excellent preventive, was very dear. He suggested that the Government should undertake the erection of hay and straw sheds and the covering of open manure yards by contract at a price considerably below what farmers themselves would have to pay. This would afford an inducement for farmers to have this work carried out, and thus effect a great saving in hay, straw, and liquid manure.

There had been a campaign in his county against rats which had had very beneficial results, and he would like to see sparrows dealt with in a similar way. The responsibility for rats often rested with neighbouring towns, and local authorities should be compelled to destroy them.

218. Mr. Shields said that another means of increasing production was by converting some of the land at present under grass into arable. He referred especially to grass in a long rotation; in addition, 10 per cent. of permanent pasture might be brought under the plough. In Scotland, farmers depended on the period during which land was under grass to restore the fertility of the soil, and most of the grassland had been put down at very great expense, and, unless some guarantee were given to the tenant for his outlay of capital, it would be very difficult to induce him to plough. At present farmers received a good return from grazing this land, and, having been so hit in the past through the fall in prices, they would need a guarantee that prices would be maintained before they would break it up. He thought 40s. or 42s. a quarter for wheat, and 20s. or 22s. for oats would be suitable figures for guaranteed prices, but if a considerable increase in wheat production was required, a higher figure, say, 45s., would have to be offered. In reply to Sir Matthew Wallace, Mr. Shields said that he did not advocate the breaking up of grass above a certain altitude, say, 400 feet, and admitted that, in the case of his own farm, he cropped so closely that there was no grass which could be ploughed; half his farm was under grain, divided equally between wheat, oats and barley. In his district, however, there was a great deal of grass land which could be ploughed with advantage. He considered that with a wheat guarantee at 40s., oats might fairly be placed at 20s.; it cost at least £1 an acre less to grow oats. He admitted that he himself found wheat growing profitable at pre-war prices, and said that personally he needed no State guarantee. He would say that in the ordinary way farmers had no right to claim a guarantee from the State, but if the nation required an increase in the production of cereals he considered that a guarantee was the best means of securing it. What farmers needed was only security against serious loss from a heavy fall in world prices; beyond that they would be left to obtain their profits as best they could. He did not think it would be necessary to offer farmers a bonus for each acre of grassland converted to arable.

219. Mr. Shields said that if there was to be an increase in arable cultivation, it would be necessary to give careful consideration to the labour problem. His own feeling was that after the War the shortage of labour would be more acute than before the War. He thought that many of the farm servants who had joined the Army would emigrate and not return to work on the land in this country; the War had made a break in their lives and they would make a fresh start after it was over. The hours of labour in his district were:—ten hours in the field and two hours in the stable in the summer time, that is, from 6 a.m. to 6 p.m. with two hours off for dinner. The Saturday half-holiday was started about four years ago and had been a success. He had given the men a piece of land on his own farm to work on the Saturday afternoon, with the use of his horses, &c., to grow food in addition to the produce of their gardens. In the first year the experiment was successful, and they divided £7 or £8 profit among themselves; but in the second the produce was reduced, and in the third year the men lost all interest and the land had to be taken away. Mr. Shields said that connected with the labour supply was the question of cottage accommodation. In districts where land had gone out of cultivation the houses had been allowed to fall out of repair, and in many areas there was a serious shortage of cottages. He thought the difficulty could, to a great extent, be met by the State offering loans to landowners on easy terms for the erection of cottages. On his farm he was responsible for the upkeep of both cottages and farm buildings, except main walls, &c. Farm servants living in a cottage rent free often did not value it at its true worth.

220. Asked whether he was in favour of legislation on the subject of agricultural wages, Mr. Shields said he did not see the necessity for it. After the War he thought agricultural wages would be certain to keep up. The payments in kind on his farm amounted to about 2s. a week; but men need not take potatoes if they preferred cash. He would favour some arrangement by which employers and workmen could meet to arrive at some fair view of what wages should be during the succeeding half-year. In Scotland, the scarcity of labour was so great that a farmer could not afford to let a good man go if a few shillings would retain him. This tended to keep wages up. The Scottish Farm Servants' Union had not, at present, much influence in his district.

221. Mr. Shields strongly advocated the adoption of a scheme to enable tenants to become the owners of the land they occupy. Many landowners found the burden of taxation so great that they were unable to spend any money on the improvement of their estates. This prevented farmers from making the most of their land. Moreover, the tenants had not sufficient security under the present system of tenure. As the owners were often receiving a return of one to two per cent. out of agricultural estates, he thought the Government might take over the property by promising an income in perpetuity equal to their present return. He admitted that there were not a large number of farmers who had the capital to buy their land as well as farm it, and also that there was a risk that ownership might stereotype the existing tenancies and retain on the land farmers who were not making the most out of it. Under the present system, landowners were, in most cases, little more than rent-receivers, the tenants being bound to keep up the buildings, and, in many cases, the tenant never saw the owner, except, perhaps, during the sporting season. Land was usually held on a nineteen years' lease, with a clause whereby either the proprietor or the tenant could give two years' notice. At the end of the lease it was customary to reconsider the amount of the rent. Mr. Shields thought

that tenants generally would welcome the display of more interest in farming on the part of landowners, many of whom had absolutely no agricultural knowledge whatever. He did not disparage landowners, but he considered that there must be a much greater agricultural justification than there was at present for the landowning class. He would approve of greater powers being given to owners to get rid of bad tenants, and if, as a result of the new policy, increased prosperity resulted to agriculture generally, he would be entirely in favour of landowners sharing in such prosperity.

222. Mr. Shields agreed that an element of compulsion would naturally have to be associated with the granting of a minimum guarantee—that is, that, where national interests conflicted with private interests, the former would have to prevail, provided the State offered compensation. Compulsion would have to be applied through the landowner, who would be required to turn out a bad tenant after giving him due warning. In the same way, if an owner refused to improve the farming on his estate, the land should be taken away from him.

223. On various subjects which were discussed in the course of his examination, Mr. Shields expressed the following views. The shrinkage in the area devoted to corn in Scotland was mainly due to the fall in corn prices. A great deal could be done in the rearing of calves. One of his good milch cows calved in January; he bought two calves a fortnight and by the end of February eight additional calves were getting milk from that cow, bruised oats being the chief food supplied. This system resulted in a great saving of cost, as in the ordinary way four to five acres of grazing land would be required to bring up nine calves. It was not necessary to go into big schemes of land reclamation at the present time in order to increase cereal production. There was, however, a good deal of land in Scotland covered with moss which might repay for reclaiming. Tenants would reclaim such land lying near their farms if they were offered sufficient inducement. It would be necessary to ensure that adequate compensation for such improvements was paid in the event of a tenant leaving his holding.

MR. CHARLES P. HALL.

224. Mr. C. P. Hall has held, for the past 25 years, the position of land agent for the Duke of Bedford's Bedfordshire and Buckinghamshire Estates of about 30,000 acres; he is also a Fellow of the Surveyors' Institution, and a Past President and a member of Council of the Land Agents' Society.

225. In order to explain the origin of the scheme of "Smallholders Ownerships," more particularly the scheme established by the Duke of Bedford, K.G., at Maulden, Bedfordshire, Mr. Hall first mentioned the circumstances which led up to it. In the year 1908, the Bedfordshire County Council desired to purchase from the Duke, under the Smallholdings Act, a farm known as Ruxox Farm, containing 232 acres, and including a farmhouse and buildings, and two cottages. The farm was valued at £1,773 and was offered to the County Council at that price. The Council, after calculating the charges for interest and sinking fund spread over 80 years, in accordance with the provisions of the Act, the cost of adaptation, legal and other expenses, to which they added a sum representing about 3s. an acre for management and contingencies, found that they could not divide the farm and let it to smallholders except at a rental considered to be too high for success. The Council represented the position to the Duke, and enquired whether he would accept £6,000 (a reduction of £1,773) to enable them to let the land after adding the expenses, at a rental which they considered the prospective smallholders might fairly be expected to pay. His Grace accepted the offer of the Council and sold them the farm for the £6,000 they offered. It was "adapted" and divided into 17 smallholdings varying in size from 45 to 2 acres, and was let at an average rental of 40s. 6d. per acre for the four larger holdings, where houses and buildings were provided, the Council paying the tithe. Mr. Hall considered, therefore, that the farm was acquired and let to smallholders on fairly easy terms.

226. The Duke was of opinion that the principle of the Act, by which the tenants purchase the land in 80 years (through their rents) for the benefit of the community, was not a satisfactory one, and desired to devise a scheme whereby the occupiers should be enabled to purchase their holdings for themselves and their families. An opportunity occurred through the death of the tenant of the farm adjoining Ruxox in 1910, viz., the Great Farm, Maulden, which contained 448 acres, 2 roads, 16 poles, and a scheme for establishing a number of small ownerships on this farm was prepared. (Copies of the Scheme and Plans as published were handed in by Mr. Hall.) The main principles of the scheme were to be:—(1) That in order to test its soundness it should be based and carried out on strictly business or commercial lines, which if successful might be followed by others; (2) that the small owners should purchase outright on taking possession, by means of instalments of principal and interest payable half-yearly, the number of years over which repayment was made to be shortened as far as possible, in order to let the purchasers feel that actual and unencumbered ownership was in sight during an average lifetime; (3) that no deposit should be required, in order to allow purchasers to retain all their capital for their business; (4) that the difficulty of obtaining capital for the erection of the necessary houses and homesteads should be met by advancing money on the same terms as the purchase money of the land.

227. As a first step the Duke purchased the freehold of the farm, 448 acres, 2 roads, 16 poles, from his trustees, on the valuation of an independent valuer.

	£
Valuation, after deducting tithe and land tax, amounted to	9,940
Less the value of the house and homestead and 72 acres of land unsuitable for smallholdings, and sold separately	2,600
	7,340
Add, the value of the land occupied by new road and cost of constructing same, fencing, culverts, legal and surveyors' charges ...	3,380
Cost of redemption of tithe on commons, and land tax on the whole area	1,095
Total cost of 370 acres, as adapted for smallholdings	11,815

228. Mr. Hall said that the farm was surveyed and 341 acres divided into 18 smallholdings, varying in size from 43 acres to 1 acre. 29 acres of pasture were appropriated as cow and horse commons, and 6 acres were occupied by a new road. The farmhouse and buildings and some land adjoining, 72 acres, being unsuitable for smallholdings were disposed of by private sale. A new road $1\frac{1}{2}$ miles long was made and fenced, and has since been taken over by the County Council as a public highway. The cost of the 376 acres (£11,815) was apportioned on each of the 18 holdings as their respective capital values, including common rights, and the half yearly instalments of sinking fund and interest over 35 years were calculated on these amounts. The rate of interest charged on the unpaid balances of principal was 3 per cent. Applicants for holdings were offered alternative systems of repayment, namely, the "Instalment" system, and the "Annuity" system, particulars of which were given in the scheme.

229. The offer was made known, and over 500 applications for small ownerships were received. Purchasers for the 18 holdings were selected, the holdings were conveyed to them, and they took possession at Michaelmas, 1910. Seventeen purchasers selected the "Instalment" system and one the "Annuity" system of repayment. Eight purchasers out of the 10 holdings over 10 acres borrowed £500, and have erected houses and homesteads with the money. Two over 10 acres purchased the two cottages on the farm and borrowed £100 each for the eleven acre purchasers have since borrowed £350 each and have built erection of buildings. Two four acre purchasers have since borrowed £350 each and have built cottages and outbuildings. The rate of interest (3 per cent.), and the term of years (35) are the same for the purchase of the holdings and the building loans. The principal monies in both cases are secured by first and second mortgage charges. The freehold of the commons is vested in trustees, and they are managed by a committee elected by the small owners from amongst themselves, annually. The scheme completed its sixth year at Michaelmas last (1916). So far payments have been punctually made, and there are, and have been, no arrears whatever.

230. Since the commencement of the scheme, there have been three failures amongst the original owners. In no case was any loss incurred by the Duke; the men who failed had no difficulty in disposing of their holdings to successors on terms which enabled the payments to be kept up on practically the due dates.

231. The smallholdings tenants of the County Council at Ruxox and the smallholdings owners at Maulden adjoin. Both farms were previously occupied by tenant farmers at the same rent per acre. Both are now almost entirely "market gardened," for which the soil and situation are very well adapted. Four families are housed in the former farmhouse and cottages at Ruxox, and twelve families in new houses and buildings at Maulden. The remaining occupiers, in both instances, live off their holdings. The rent of the holdings at Ruxox, taking the average of the four which are provided with houses and buildings, is 40s. 6d. per acre, free of tithe. This is in perpetuity so far as the occupiers are concerned. The instalments and interest at Maulden for land purchase and building loan, taking the average of those provided with houses = 43s. 6d., including tithe. This includes the common rights, which do not exist at Ruxox, but are worth, Mr. Hall considered, an additional 3s. an acre at Maulden. This is an annually decreasing amount. Allowing for the value of the common rights included in the Maulden payments (3s. per acre), the difference in the annual payments is 4s. 6d. per acre higher in Maulden, but the amount decreases every year and the men are effecting an investment resulting in the complete ownership of their holdings in 35 years from the date they took possession.

232. The difference between the two schemes, Mr. Hall explained, is that the men at Maulden are now the owners of their holdings, which they are gradually paying for over a term of 35 years. The Ruxox tenants are gradually paying for their holdings for the benefit of the community over a term of 35 years. The Maulden owners seem quite content with their prospects and the mortgagee has received the agreed instalments of principal and interest in full and practically on the due dates. He has already been paid back £17 2s. of each £100 he has lent, or nearly one-fifth of the whole; consequently his security for the future is fairly assured.

233. At the time the scheme was started (1910). Mr. Hall pointed out, 3 per cent. was a low, but not an impossible, rate at which money could be borrowed. He admitted that circumstances are now different, as money cannot be borrowed at 3 per cent.* But he said that this fact applied equally to any scheme of purchase by instalments, whether by the State (who pass the purchase price on to their tenants) or to the case where the holdings are purchased direct for themselves (as in the Maulden scheme). In either case it appeared to him probable that for the immediate future, any purchase by way of loan and repayment by

instalments will involve the term of years over which the loan is spread being lengthened in order to reduce the annual instalment of principal to meet the increased rate of interest. The total annual payment, Mr. Hall said, is the governing factor, whether an occupier is an owner or a tenant, and the amount he can pay must be determined by the amount of profit his land yields. Upon this (which is largely affected by prices and seasons) the actuarial calculations as to the number of years over which the purchase money must be spread almost entirely depend. If, for instance, the profits of this class of holding were, from any cause, to be largely increased, an occupier would be able to pay a larger annual sum, which might then very well cover an increased rate of interest, either wholly or partially.

234. In reply to questions, Mr. Hall expressed the opinion that the total production of food from both sets of smallholdings he had mentioned was greater than that previously obtained when the land was worked as large farms. The holdings were, however, with one exception, cultivated on the market garden system, and, although they were successfully producing vegetables and similar good crops, he said that it would not be reasonable to draw the conclusion that the conversion of large farms all over England into settlements of smallholdings would be beneficial to food production. Mr. Hall considered that, as a rule, the greatest production was obtained on large farms, but thought that, given the right soil, the right locality, and the right man, smallholdings should form a valuable part of any scheme of agricultural development. It is desirable that the rural population of this country should be increased, and, in his opinion, that object would be furthered by a well worked out system of smallholdings.

235. Asked whether there was any co-operative movement connected with the Duke of Bedford's holdings, Mr. Hall replied that there was not, and that there seemed to be no desire on the part of the holders to start anything of the kind, though he personally agreed that co-operation would be beneficial. At present, he said, each man bought and sold to a great extent on his own account, although they did sometimes club together and buy trucks of manure, tons of cake, seed potatoes, &c., jointly. The produce of the holdings was sent to most of the large cities in England, but greater facilities were needed for getting the goods to market.

236. Mr. Hall expressed the opinion that the success of the smallholdings at Morden was chiefly attributable to the fact that the holders received the full rights of ownership on taking possession.

18th Day, 5th December, 1916.

THE RT. HON. VISCOUNT MILNER, G.C.B., G.C.M.G.

Guaranteed Minimum Price for Wheat.

237. Lord Milner had been asked to state his views on three points. The first was "the case for basing an agricultural policy on a guarantee for wheat." His Lordship explained at the outset that he was not an agriculturist, nor did he lay any claim to expert knowledge of agricultural processes. His standpoint was that of a student of National Economy, regarding the land of the country as a single estate of which the community is the owner, and not concerned with the interest of individuals except as a means to an end. The end was to get the maximum benefit for the community out of the use of its land—but the maximum benefit not simply in cash but in welfare. The distinction, his Lordship said, was important. He could conceive a line of development—he was not sure that the nation was not travelling on that road before the War—by means of which Great Britain would become, so to speak, the home counties of the world, or at any rate of the English speaking world—a country mainly residential, the playground of the wealthy (not being always British citizens), with large estates devoted primarily to sport and luxury and innumerable villa residences. No doubt the market value of the land would be enhanced by such a use, but not its real value to the nation, at least as long as security and national independence were regarded as the highest possessions. For obviously such a use of the land would preclude the possibility of its furnishing even a small proportion of the food of its people. From his point of view no increase in the money value of the land of the country would compensate for complete dependence on outside sources of supply for the necessities of life. That may be good business from the point of view of certain individuals or classes, but never for a nation. He held most strongly that the increasing dependence of this country on imported food supplies was by no means a necessary consequence of its industrial development. The agricultural output of the United Kingdom could be greatly increased without injury to other forms of production—indeed, the one should assist the other.

238. Lord Milner said that he had found an overwhelming body of evidence for the view that the nation required more arable, and that there was enormous waste in leaving millions of acres as indifferent pasture, which, if ploughed up, would yield rich crops of cereals, roots, potatoes—in fact, all the chief staples of human and animal food. To this must be added a considerable amount of land now absolutely waste, but quite capable of reclamation. Leaving aside all that has been written on the subject by agricultural experts, he based his opinion

on what he learned as Chairman of the Departmental Committee on Food Production appointed by the President of the Board of Agriculture in 1915. He thought any moderately intelligent person coming to the subject as he did with an open mind would have been bound to conclude that this much was proved, that the addition to the arable area of at least four or five million acres in England and Wales alone would add greatly to the supply of breadstuffs without any diminution of the supply of meat and milk. He thought it was also proved—though this is a different point—that a great deal of the remaining pasture could be rendered much more productive for the keep of stock by better treatment and especially by a more liberal use of fertilisers, such as basic slag. Generally speaking, he had arrived at a profound conviction that the land of England was very much under cultivated and would richly repay a far more liberal application of capital and labour to its development, notwithstanding that some portions are as highly farmed as any land in the world. He was convinced that in popular opinion the possibilities of increasing the home production of food were very greatly underrated. The problem was how to get the indifferent pastures converted or reconverted into plough-land. And the trouble was that in this respect the interest of the individuals owning or farming the land by no means necessarily coincided with the interest which the community had in getting the most out of it. Obviously, from the point of view of National Economy, it was bad business to have land yielding £4 worth of produce an acre if it could yield £8 or even £6 worth. But it by no means followed that it was bad business from the point of view of the farmer. He might be making quite a good and secure living out of unimproved grass land, as his expenses were small, especially in labour, and his rent very likely low, and he made his living with little trouble to himself. To break up the land and go in for more intensive cultivation would mean much greater expenditure, certainly for labour, but also for machinery, seed, fertilisers, &c., &c., and much harder work for the farmer himself. It seemed a simple proposition that, if the community, for its own purposes, wanted the land cultivated in a different way from that in which it was being cultivated, it should insure the farmer against loss in making the desired change. There were a variety of ways in which this might be done. Among the witnesses who appeared before the Food Production Committee in 1915, there was a large preponderance of opinion in favour of doing it by guaranteeing the farmer a certain price for his wheat for a series of years. Some of the witnesses suggested a similar guarantee for oats, and Lord Milner thought that more would have favoured this also if the question had been directly put to them. His own opinion was that, if only England and Wales were to be considered, the object in view—an increase of at least four or five millions in the arable area—would be achieved by the guarantee for wheat alone. The case might be different with respect to Scotland and Ireland, and even as regards England he had an open mind on this point. But he was sure that, if the policy was to increase arable under present conditions, the central pillar of it must be the guaranteed price of wheat. To begin with, much more wheat was absolutely necessary if the nation was even to approach the ideal of being self-supplying. It was the one great item of food in which this country was most dependent on outside supplies. But, apart from this, insistence on wheat was calculated to raise the whole standard of arable cultivation, especially for the newly broken-up land. This was a reason why a guaranteed price for wheat seemed preferable to what was often urged as an alternative—though the two were not mutually exclusive—namely, a bounty of so much per acre to the farmer for breaking up land. This did not seem to offer the same inducement for good farming of the land when broken up or for getting the maximum produce out of it as the guaranteed price, the benefit of which latter to the farmer would depend upon the amount he produced. Where land was suitable for the cultivation of wheat at all—and that he gathered was the case with a good half of the agricultural land of England—there was nothing so calculated to lead to its being well farmed all round as the encouragement of heavy wheat crops. By insuring the farmer a reasonable profit on his wheat crop, the State was really providing, as far as public action can, against slovenly or niggardly farming.

239. The objection which was always urged to the policy of a guarantee, Lord Milner said was that it might involve the country in great expenditure. The more successful it was, so ran the argument, the greater might be the national loss. If, for instance, instead of producing 6 to 7 million quarters of wheat, as at present, the nation were, owing to the effect of the guarantee, to produce 20 million; and if the price were to fall, say 10s. below the guaranteed price, it would cost the Treasury 10 millions a year. It was no use saying, though he did as a matter of fact think, that this was not likely to happen. But even if this did happen, would it, after all, be anything so very terrible? The guarantee was an insurance and more than an insurance. It was not only intended to protect the country against the danger of an actual shortage of food in circumstances like those existing during the War, but to give an impetus to the better cultivation of the land, involving a big addition to the national income under normal conditions. If, by a better system of cultivation, the land of England could be made to produce an extra hundred million pounds' worth of food—which Lord Milner believed to be a very moderate estimate—the nation should not grudge the expenditure of a considerable sum in one, or possibly even in several years, for the purpose of bringing about this result. Moreover, it must not be forgotten that the money so spent was not lost to the country. It was a subsidy paid to a particular class by the community as a whole for a national object. If the object was big enough, the subsidy was justified, especially in the case of agriculture, which had been so freely sacrificed in the past in the interest, or supposed interest, of other industries. On the other hand, if the world price did not fall below or much below the guaranteed price, all the above arguments were superfluous. In that case the improved methods of cultivation and the increased produce of the soil were obtained, so to speak, gratis, simply by the encouragement given to the farmer through the prospect of security.

240. Lord Milner said that there was, of course, another method of giving security to the farmer, and one generally adopted in other European countries which attach importance to the domestic production of food. That is a duty on imported food-stuffs when falling below the price at which it is assumed that the home farmer can make a reasonable profit. Personally he would not object to this method, though he believed it would encounter more prejudice in this country than the guarantee. But he thought that it would be much more difficult to work, owing to the constant changes of duty which would be necessary, in view of the fluctuations of the world price, if it was desired to give the farmer the same security that the guarantee would give him. Moreover, it would be very difficult to bring about the change in agricultural practice which was desired, by means of an import duty. The guaranteed minimum price was, he thought, the best method for starting the process. At the same time he did not see why, in making a guaranteed price for wheat the basis for the reconstruction of agriculture, the State should preclude itself from having recourse to import duties hereafter, if future conditions seemed to justify such a course. The essential was to obtain the maximum quantity of home-grown wheat by ensuring such a price to the farmer as would leave him a reasonable profit. Whatever that price, it might be that the effect of the maintenance of the guarantee over a period of years would be to enable this country to raise all or almost all the wheat it required. Why should it be assumed that science had said its last word about stimulating the productivity of the soil? If, contrary to present popular beliefs, it should turn out that with improved methods of cultivation the average yield of the acre could be considerably increased, little imported wheat might be required to supplement the home supply. In that case, what would be the position? If the price at which wheat could be imported was equal to, or higher than, the guaranteed price, the guarantee would cost nothing. But if the price of the imported wheat was lower than the guaranteed price, it would be a question whether it was better to adhere to the guarantee, or to substitute for it an import duty, bringing up the price of the imported wheat to the guaranteed figure. Lord Milner assumed as an illustration that a guaranteed price of 40s. maintained for a number of years resulted in raising home production to 30 million quarters, but that 35 millions were required and that wheat could be imported at 35s. a quarter. In that case, under the guarantee system, 7½ millions would be paid out of the Exchequer in order to make the quartern loaf, which would in any case be cheap with wheat at 40s., ½d. cheaper. With a 5s. duty, on the other hand, the Exchequer, instead of losing 7½ millions, would gain 1½ millions. The difference to the Exchequer between the two courses would be no less than 8½ millions. It was doubtful, his Lordship considered, whether this sacrifice would be worth making for the sake of a slight reduction in the price of a loaf already cheap. Indeed it was questionable whether, if once the bulk of the wheat required could be produced at home at, say 40s., with a reasonable profit to the grower, it would be worth while to make any sacrifice of revenue at all in order to let people buy it at any lower price. A prosperous agriculture and a stable moderate price of bread, affording a reliable foundation for the fixing of wages, and for the steadying of prices generally, appeared to him inestimable advantages, to secure which it would be well worth while to forego the greater cheapness which was at times enjoyed, while the nation remained at the mercy of the world-price, but at the cost of occasional periods, like the present, of very dear bread, and of constant insecurity. The stable moderate price, which would result, as he believed, from a greater reliance upon home resources and the better cultivation of the soil of this country, seemed to him most easily attainable, in the first instance, by a guarantee given to the farmers for a number of years, which might certainly cost a good deal at times, though it was also quite possible that it might cost little or nothing. But that position once attained, it was at least arguable that thenceforward it would be preferable to give agriculture the security which was vital to it, if indeed it still needed such protection, by means of an import duty. Lord Milner added that the question of the stabilising of the price of the principal article of food had not, in his opinion, ever been sufficiently considered as a possibility. He could not exaggerate the social and political advantages which he believed would result from it if it were found to be a possibility, and he was not without hope that it might be an outcome of a successful agricultural policy. In advocating the granting of a minimum guarantee, Lord Milner said, his sole object was to secure an increase in home production for the benefit of the nation, and not to add to the profit of farmers; he recognised that farmers would probably rather be left alone.

241. In replying to questions on this part of his evidence, Lord Milner said that he thought there might be something to be said for fixing the minimum price so that it would vary with the value of money. He did not consider, however, that for the guarantee to move with reference to the bank rate would be a workable proposal. It might, however, be possible to fix it with reference to the price of certain other commodities. He had not come to any definite conclusion as to the number of years for which a minimum guarantee should be granted. He considered, however, that there should be a limit to the period. Broadly speaking, he would favour giving the guarantee for any period necessary to achieve the objects in view, the shorter the better. He recognised that four years would not be sufficient, but agreed with a suggestion that it might be a good plan for the State to undertake not to withdraw the guarantee without giving four years' notice. His Lordship felt strongly that there was no ground for fearing that once a large increase in home production had been secured, and a large addition made to the arable area, the nation might withdraw the guarantee and involve the agricultural community in ruin. No other nation in the world had ever adopted the view prevalent in this country during the last 50 years that the maintenance of its agricultural industry was of no importance; and once, Lord Milner said, the nation could be persuaded to adopt a saner policy, he had no fear that it would under any circumstances return to its former view.

242. Asked whether, if some form of security of price was given to the farmer, it was not likely that an increased rent would in time be obtained by the landowner, Lord Milner said that that result might follow, but that if the policy which it was desired to adopt was in itself a good policy, he would not be deterred from following it because it might conceivably prove of benefit to certain individuals. He felt that, after the War, when it would be necessary on financial grounds to make the most of the resources of the country, it might also prove necessary for the State to insist that landowners and farmers should use their land to the best advantage. He did not think that compulsory powers would be needed, but the State would be perfectly justified if, having ensured farmers against loss by means of a guaranteed price, it insisted on the proper cultivation of the land. Bad farmers refusing, or unable, to improve their methods, would have to be given notice to quit, and landowners who were not making the best use of their estates should be relieved of them.

243. With regard to the question of agricultural wages, Lord Milner said that the policy he had advocated aimed at increasing the productivity of the land of this country, and he certainly thought that a part of the increased value should be secured to the labourer. It was impossible to look forward to a great agricultural development without taking steps to raise wages above those paid in many districts before the War.

244. The two other points on which Lord Milner had been asked to express his views were "Village Reconstruction" and "The Encouragement of Tithe Redemption." He explained that some years ago in a private memorandum about Land Ownership generally he had dealt with these questions. As it had been totally impossible for him at short notice, and in the midst of much other work, to re-write or revise these proposals, he had thought it desirable to put them before the Sub-Committee in their original form. In doing so he put in two caveats:—

- (1) The proposals were now given without their context, and might be less intelligible on that account.
- (2) Changes which have occurred since they were written five years ago, especially with regard to the value of money, made some of the details, particularly those bearing on the terms of tithe redemption, inapplicable under present conditions. This did not, however, affect the principle for which he was contending, namely, to facilitate the redemption of tithe by allowing the tithe-payer to redeem in land instead of in money.

The proposal with regard to village reconstruction in its original form was as follows:—

Village Reconstruction.

245. "There can be no doubt that there exists great dissatisfaction in many, probably in most parts of the country, with the dullness and lack of prospect in village life, a dissatisfaction which takes practical shape in the constant exodus from the country to the large and already overcrowded towns. And those who have the most intimate acquaintance with country life are agreed that there is reason for such dissatisfaction. Yet, the causes of it are to a great extent removable. What has been done to remove them in some favoured localities might be done in others, and the excellent conditions, which already exist in a few places, might become the rule instead of being the exception.

246. "Anyone who travels some distance through almost any country district must be struck by the enormous difference in the look of the various villages through which he passes. Some appear to be prosperous and progressive and others to be standing still or decaying. Occasionally one is found which is exceptional in neatness and general appearance. On enquiry one almost invariably discovers that it belongs to some great estate, and for generations past has been gradually improved by successive owners. The cottages are good, the cottage gardens of good size and full of flowers, there are plenty of allotments and small occupations, and so forth.

247. "The difference between the good village and the bad village is entirely due to the presence or absence of some guiding mind, to the fact that the one has, and the other has not, been developed on some general plan, is in fact organized, instead of being allowed to grow up at haphazard. This organisation, where it exists, has in the past been provided by some good landlord, who happened to be in a position to deal with the village as a whole, and was animated with a desire to develop it in the interest of its inhabitants. But the cases in which a landlord has, through his ownership of all the land, been able to set thus, and has at the same time had the means and the disposition to do so, are exceptional. And it is evident that the trend of things is not favourable to much further development of this kind, through the agency of individual landowners, in the future. The problem is, what can be done by public action to bestow upon villages generally the benefits already enjoyed, in fortunate instances, by those which have been systematically planned and cared for by intelligent and public-spirited landlords.

248. "A study of the Ordnance Map of an ordinary village reveals the fact that it has been built on haphazard lines, every man studying his own interest irrespective of that of his neighbours. Thus we find cottages crowded together without gardens, allotments non-existent

or far remote from the village, and grass fields actually inside the village occupied as parts of large farms. There is no land available for small ownership, for plots, on which the villagers might supplement their wages or other earnings by growing fruit or vegetables, or keeping bees or poultry. There is no common for cows or horses. There is no playground for the children except the highways (no longer safe as a playground).

249. "A knowledge of the inhabitants shows that many of them work on the land for wages which never vary from youth to old age—a veritable blind alley. The children have the choice of becoming agricultural labourers or of migrating to the towns or to Canada; no ladder of advancement is apparent, and the whole life is dull and dreary. Milk in hundreds of gallons is produced in the parish, but it all goes to London and other big towns. The inhabitants are lucky if they are allowed to buy skim milk from a sympathetic farmer, and even then they must go to the back door and fetch it.

250. "However a man may save in such a village, there are no opportunities for employing his savings in the village itself, and a labourer cannot be blamed if he decides that, so far as he is able, he will send his children away to save them from the blind-alley existence which he has led himself.

251. "The number of cottages in villages which stand on only two or three poles of ground is enormous, and yet within a stone's throw of them there is often a grass field or a arable field occupied by a farmer, the former containing the cows which produce the milk the villagers cannot buy, and the latter growing a poor crop of wheat or beans and sometimes full of twitch and weeds. It is not surprising that the villagers become embittered when they see land, which they so sorely need themselves and could make such good use of, badly farmed under their very noses. Resentment at such a state of things is at the bottom of much of the unrest and discontent among our rural population.

252. "In order to understand how such a state of things came about and at the same time to find a way out of it, we must carry our minds back to the Enclosure Acts of a century or more ago. The shape in which the land was left by these Acts was presumably that which best suited the conditions of the time, and the interests of the large proprietors, who were then politically all powerful. But circumstances have altered since those days, and ideas have altered. The distribution of political power has also altered. The time has come when we must contemplate a re-enclosure, which will take account of present conditions, and which will not regard merely the interest, real or supposed, of a single class, but will make the land more generally useful to the whole community. In doing so it will no doubt be necessary, though not to any great extent, to take some of the land from its present owners. But the principle that the rights of private property must not stand in the way of public improvement, is now well established in this country, and as long as private property is not wantonly or unnecessarily interfered with, and the owner is fairly compensated for what he is asked to give up, there is no ground for complaint.

253. "Starting from this principle, let us consider in what manner the necessary changes can be carried out. It is a good rule to make use of existing laws and agencies, wherever possible, and the administrative machinery required for dealing with the problem of the village already exists, nor would it require any large amount of legislation to set it working. The great thing to remember is that, while the defects of our village system are in their general character very much the same all over the country, they yet vary greatly in detail. The requirements of one locality are different from those of another. No two villages have exactly the same needs. Hence it is absolutely necessary to devise a scheme, which will take account of the particular circumstances of each community, which will give people what they really want, not what theorists think good for them, and for the execution of which it will be possible to count on their co-operation. At the same time the State must always exercise a controlling power. Where legislation interferes with private rights, and the aid of public credit is invoked, it is essential that a public authority should have the deciding voice, to prevent injustice and abuse, and to ensure that whatever is done may be in conformity with certain general principles of public policy.

254. "To carry out the reconstruction of villages on these lines the following plan is submitted for consideration:—

- "(a) Nothing should be done in any Parish except on the initiative of the Parish Council confirmed by a Parish Meeting, or, alternatively, on the requisition of a certain proportion of the inhabitants.
- "(b) In order to prevent frivolous requisitions, a small payment of, say, £5 or £10 should be required of the Council, or requisitionists, as an earnest of the seriousness of the movement.
- "(c) The application should be made to the Board of Agriculture, who now take the place of the Enclosure Commissioners.
- "(d) The Board of Agriculture should appoint a Valuer in general practice at an agreed fee to make a thorough report on the Parish, showing how it might be improved on business lines in respect of small occupying ownerships, gardens, allotments, small holdings, cottages, cow commons, horse commons, recreation grounds, &c., &c.
- "(e) The instructions to the Valuer should be such as to leave him complete latitude in making proposals with regard to the land in the vicinity of the village or

its dependent hamlets, but should make it clear that it was no part of his duty to deal with farms in the distant parts of the Parish.

- "(f) The Parish Council should appoint three persons to confer with the Valuer, although he should, of course, have the right to make any independent enquiries he found necessary to complete his local information.
- "(g) The Valuer's report should be sent to the Board of Agriculture, who would communicate it to the Parish Council, and it should be open to the inspection of all inhabitants and other persons interested.
- "(h) The Board of Agriculture should, through an Inspector, hold a local enquiry to deal with objections to the Valuer's Report, and the Inspector should then draw up a final scheme for the approval of the Board, setting forth in detail the changes to be effected, and scheduling the land to be acquired, the value of which would, in case of dispute, have to be determined by the usual method where land is compulsorily taken for public purposes.
- "(i) The Board of Agriculture should be responsible for carrying out the scheme, and the Parish Council for its subsequent administration, subject to the supervision of the Board.
- "(j) The money required for the acquisition of the necessary land and its adaptation to its new purposes should be advanced out of public funds and repaid in instalments by the Parish Council, which in its turn would be recouped by the parties directly benefited in proportion to their several interests. On the other hand, the expenses of the valuation, the local enquiry and other preliminaries might reasonably be defrayed by the Board of Agriculture out of an Imperial grant such as was made under the Small Holdings Act, 1907."

255. "The above scheme is no doubt capable of great improvement in detail. It is only put forward to illustrate the general idea and to provide a definite basis for discussion. It may be as well, by way of further illustration, to give an example of what might be done under a scheme of this character. The following is the description of an actual village of 800 inhabitants situated in an agricultural district some 60 miles from London, which presents a fair type of the defective arrangements which it is desirable to remedy. In olden days this village was a small market town, and there is a small open octagonal market house still standing on the village green. It used to be a centre for leather dressing or tanning, but there is very little of this trade left. It was enclosed in 1799. The facts as to acreage and rateable value are as follows:—

	Acreage.	Rental Value.
Agricultural Land	2,836	£1,280
Farm Houses and Homesteads	19	273
Woods	296	89
Houses, Cottages, and Gardens attached thereto	36	1,863
River and Roads	54	—
	<u>3,239</u>	<u>£3,505</u>

256. "There are no hamlets in the Parish, and the whole population is huddled together in the south-east corner. The 35 acres of developed property are divided as follows:—

No.	Description.	Area.
85 Cottages		of 3 poles and under.
24		4 " exactly.
11		5 " "
47		6 " to 10 poles.
41 Houses and Cottages		11 " " 20 "
37		21 " " 40 "
15		41 " " 80 "
200		of over 80 poles.
4 Houses		6 acres.
1 Mansion		

265 Total Dwellings in the Parish.

257. "The 35 acres of developed property are owned by 65 persons. The agricultural land of the parish is mostly composed of second-class heavy land with some decent pasture, and is mainly owned by the Lord of the Manor. It will be observed that the average amount of land to a cottage is extremely small. Ten poles should be regarded as the minimum for a cottage plot. Here more than two-thirds of the cottages have less than that, while nearly one-third average three poles and under! Yet, while the cottages are so crowded, there are two grass fields with long frontages to the High Street which should be utilised for the needs of the parish. What is required in this Parish is an area for quite small cottage gardens, another area to be set out in small occupying ownerships with road frontages, a cow common

and, possibly, a horse common. The land for all these purposes could be purchased in suitable positions for under £30 an acre, which, on the $3\frac{1}{2}$ per cent. basis, could be repaid in 35 years, with the large sinking fund of $1\frac{1}{2}$ per cent. In the case of land costing £30 per acre, the annual charge for interest and sinking fund would thus be 30s. per annum. By these comparatively simple changes the village could be made a comfortable and progressive one, and life in it rendered far happier than it can be under present conditions. And all this can be effected on strict business principles, the money required for the acquisition of the land being easily repayable by the people having the benefit of it."

258. Lord Milner, in reply to questions, said that he did not consider that the effect of a labourer owning his cottage would be to make him more dependent on his individual employer. The scheme, of which the above proposals formed part, had as one of its objects the improved status of the agricultural labourer. It was hoped that by giving him opportunities for purchasing his cottage, to which there would be attached a certain quantity of land, he would become more, rather than less, independent, and it was proposed to provide facilities for small ownerships which would entirely support a man and his family. He admitted that the small owner would often have economically a greater struggle to exist than that experienced by an ordinary labourer. But taking the broad human view, Lord Milner considered the small owner's lot to be preferable. He was his own master and had independence. His Lordship's experience abroad was that although small owners often had hard economic struggles, there existed among them a corporate life which developed their intelligence and led them to manage their own affairs to a much greater degree than was known in this country. Asked how the system of cow pastures held in common which he had advocated would be likely to work, Lord Milner said that he had found it often alleged that the grass would be worn out by excessive pasturage, but that did not agree with what he had seen abroad. He admitted that the difficulty with the proposals for village reconstruction would be to get the scheme started. On the one hand, the initiative would not usually be taken by the village itself, English rural life being what it is, unless there was some local person of influence and keenness to take the matter up. On the other hand, he did not think it would be a good thing for an outside authority, such as the Board of Agriculture or the County Council to step in and dictate to the local people what should be done. He thought, however, that it might be a useful scheme to make parish councils, which at present had very limited powers, responsible for starting proposals for reconstruction. The essential thing was that the condition of a village should be considered as a whole.

The following is a further extract from the Memorandum to which Lord Milner had referred:—

Tithe Redemption.

259. "There is one way of rendering land available for public purposes without compulsion, which would often fit in admirably with the policy of multiplying small holdings out of village reconstruction. That way is to give landowners the option of redeeming tithe by the surrender of a certain portion of their land instead of by the payment of a sum of money. A precedent is to be found in the Finance Act, 1910, which allows land to be surrendered in payment of certain duties.

260. "If the terms of redemption were reasonable, there is little doubt that landowners would in many cases gladly avail themselves of this option, and odd corners of farms running into or adjoining villages would generally be most convenient for this purpose. But in order to make this plan work, it would be necessary to alter the existing terms of redemption. Under the present law the landowner, in order to redeem, has to pay 25 years' purchase of the commuted value of the tithe. The actual value of tithe last year was £72 15s. for every £100 of commuted value. Thus the landowner, in order to rid himself of an annual charge of £72 15s. now has to pay £2,500. In doing so he would be investing his money at less than 3 per cent., or, to put it differently, he would be buying an interest in land yielding less than 3 per cent. per annum. With the present value of money, such a transaction would be so unprofitable that, except for special reasons—as, for instance, when land is sold in plots—the redemption of tithe has practically ceased.

261. "This is thoroughly unsatisfactory from all points of view. It is, on general grounds, desirable for both the parties interested that tithe should be got rid of. It is a burden to the landowner out of proportion to its actual amount, and, in view of the present tendency of tithe to rise, he would be more than ever glad to get rid of it. On the other hand, the clergy, who are the principal tithe-receivers, would be very much better off, if their fluctuating income from tithe, subject as it is to rates and other deductions reducing the gross amount, on the average, by about 20 per cent. (£72 15s. of tithe yielding an actual net income of only £58 4s.), could be converted into a fixed income of equal or slightly greater amount.

262. "The State must see to it that justice is done between the two parties, but the present position of affairs is hurtful to both. No doubt the present terms of redemption are very favourable to the tithe-owner, but as they are so onerous to the tithe-payer that he practically never redeems, the tithe-owner gets no actual benefit from that fact. It would be much better for him to agree to lower, but still good, terms, which might tempt the tithe-payer to redeem. Everything considered, it appears that if the 25 years' purchase were reduced to 20, both parties would have good reason to be satisfied, and redemption would once more become common.

263. "In order further to facilitate this process, a special feature of the present system of redemption would have to be taken into account and dealt with. It has been stated that £100

of commuted value of tithe is at present represented by £72 15s. 0d. of actual value, and that the net income derivable from this sum is, on the average, only £58 4s. 0d. It would, therefore, appear exceedingly good business for the tithe-owner to receive 20 years' purchase of the commuted value, i.e., £2,000, seeing that at the present time it is possible to invest money, on absolutely first-class security, at from $3\frac{1}{2}$ to 4 per cent. He would seem to be exchanging an income of £58 4s. 0d. for one of £75 to £80. But in practice this is not what would actually happen. For under the present law, where the tithe-owner is a rector or vicar, the capital sum required to redeem the tithe has to be paid to Queen Anne's Bounty, and the clergyman receives from that institution a fixed income of 3 per cent. on the amount of such capital. Hence for every £100 of commuted value he would get, on redemption, at 20 years' purchase, only £60 a year, in lieu of his present income of £58 4s. With tithe tending to rise, this is not altogether a good bargain, but there is no longer any justification for fixing the rate of interest to be paid by Queen Anne's Bounty at 3 per cent. That rate was reasonable at a time when the value of money was lower than it is now. With the general rate of interest on first-class securities standing at $3\frac{1}{2}$ per cent. to 4 per cent. it would only be fair that Queen Anne's Bounty should pay $3\frac{1}{2}$ per cent. to the tithe-owner, instead of 3 per cent."

264. In reply to enquiries from Members, Lord Milner said that he did not consider that the increased rate of interest which was now current made the above scheme in any way unworkable. The great object was that landowners should be allowed to redeem the tithe by handing over land to a public authority at a certain number of years' purchase. He agreed with a suggestion that the same principle might be applied to glebe land, which would have the effect of making the scheme more universally applicable.

265. In conclusion Lord Milner said that the memorandum from which the suggestions about Village Reconstruction and Tithe Redemption had been taken was prepared by him in co-operation with Mr. Trustram Eve. The ideas expressed on both the points were largely the result of suggestions made by Mr. Eve from his own experience and from proposals made to him by other people. He, therefore, suggested that, if the Committee were seriously going to take up either of these questions, it would be most desirable that Mr. Trustram Eve should be given an opportunity of giving evidence on them himself.

14th Day, 6th December, 1916.

MR. JOHN M. CLARK, F.S.I.

266. Mr. Clark, who is a land agent whose practice extends to Northumberland, Durham, Cumberland, and parts of Yorkshire, said that during the last 40 or 50 years a very large area of arable land in the Northern Counties had been laid away to grass, particularly the second class arable land. The best had been fairly kept in cultivation although on some farms even this class had been put to grass as well. Probably at least one-half of the arable land in Northumberland had ceased to grow cereals; in some districts much more. On many farms where formerly there was a fair breadth of land under the plough not an acre remained as arable. The reasons for this were, Mr. Clark said, (i) the very low price to which corn fell; (ii) the increase in wages and the difficulty in getting labour; (iii) the drainage system ceasing to act: these drains were put in about the 'sixties; (iv) absence of encouragement to farmers to grow corn: the economic policy of this country had in no way favoured the agriculturist.

267. The first of these reasons was, Mr. Clark pointed out, accounted for by the very large importation of foreign corn which was rendered possible by the low cost of production on virgin soils and the very low freights. The second (viz., increase of wages) was due in the North to the high wages men were able to get in coal mines and other industries, and latterly, he thought, greatly by the shorter hours and the greater attractions of the towns. The third, he said, he would deal with later in connection with the question of drainage. The fourth was due no doubt to the fact that so long as we could import our foodstuffs cheaper than we could produce them it was considered better for the country as a whole. The experience of the War had, he thought, greatly altered this view.

268. As to the possibility of largely increasing the production of cereals without in any way reducing the production of meat and milk, Mr. Clark was confident that this could be done if the best of the land laid away to grass were again brought into cultivation. He explained that he purposely said the "best" because there was a very large area of land in the North that had at one time been under the plough which was entirely unsuited by its altitude or quality to be again cropped. This land, he considered, was best left as grass, but it could be immensely improved by draining, and, in nearly every case, regularly dressing with basic slag.

269. To render this growing of cereals possible, Mr. Clark was of opinion that some method of assuring to the farmer some security as to remunerative prices for his corn was absolutely necessary. With this security he thought it not only advisable in the interests of the country, but also in the interests of the landowners and farmers, that a considerable area of this grass should be brought under the plough, as by so doing the produce of the land would be greatly

increased both as to cereals and also meat and milk. His experience was that where a farmer had a fair area of cropping land along with grass, he was able to keep a larger head of stock of all classes. Mr. Clark explained that in making this statement he was, of course, assuming that labour could be obtained. He considered that, in dealing with this large increase of arable land, it was necessary to consider the question of fertilisers, and he believed that sulphate of ammonia and basic slag were what was most required, but in order that the farmer should have the benefit of these at a fair price he thought it would be necessary that the exportation of them should either be entirely prohibited or that such an export duty should be put on as would prevent their exportation to any large extent; whilst Germany produced five times as much basic slag as this country, she used practically all she produced at home, whereas England exported nearly half of what she produced. To get the best results from these fertilisers, Mr. Clark considered it necessary that the farmer should be shown how best to use them. This, he said, could only be done by educating the farmer, and the education should not be by books (although he thought they might well be more used than they are) but by actually showing the farmer on experimental and demonstration farms what can be done and what crops can be grown. The experimental farms that have been established, as, for instance, Cockle Park for Northumberland and Durham, have done a great work, but more of them are wanted and also more money from the State, in order to carry them on on a larger scale. The British farmer was slow to learn from books or lectures, but when he saw what could be done he was not a fool, and would very quickly follow methods which he saw would pay. Mr. Clark thought too that lime had been neglected as a fertiliser. The north country soil was, as a whole, very deficient in lime. The old-fashioned method of very heavy liming was, in his opinion, a mistake, as the lime very quickly sinks into the soil and is lost as a plant food. He said that it had been proved at Cockle Park, and was the experience of others, that much smaller applications in each rotation were more beneficial. Farm-yard manure was also, he thought, most necessary, but by increasing the area of arable land the manure would be greatly increased.

270. Mr. Clark stated that he could not express any definite opinion as to the extent to which the production of foodstuffs would be increased by the breaking up of grass land and by improved methods, but he was confident that it would be very large. In advocating the breaking up of grass land, he explained that he did not refer to really good old grass which, if properly looked after, yields the maximum of foodstuffs, nor did he refer to the very poor land, but he would not hesitate, he said, to plough up good grass if it was on good arable land. If all grass land were properly and scientifically managed, Mr. Clark felt sure that the produce would be greatly increased. Too much of it, he said, was simply left to grow what it could without any attention whatever, and had consequently become so poor in the necessary constituents that it produced far less than it was capable of producing. He knew several farms where the application of basic slag had had an astonishing effect, making land which was dear to rent at 5s. an acre into land well worth 20s. This especially applied to the poor clay lands in Durham. Again, the witness stated, it was a question of educating the farmer by seeing what could be done, and Cockle Park Experimental Farm had in this work also been a pioneer. Many farmers, he said, now use basic slag regularly, and one told him recently that he used 40 tons every year, and that on not a very large farm, yet these men a few years ago, and before Cockle Park showed what could be done, never thought of putting anything on their pastures.

271. The drains put in 40 to 60 years ago had, Mr. Clark said, almost entirely ceased to do any good. Most of this drainage was done with money borrowed from the Land Improvement Company which formed a first charge upon the estate and was repayable in 25 years. The rules laid down as to depth, width apart, and size of pipes had been proved by experience to be unsuitable for that part of the country, and all the different classes of land were drained on one system. He considered it an absolute necessity, before breaking up a great deal of the land laid to grass, to have a new system of drainage. Mole-draining had not been used in the north so far as he was aware. There were so many stones in the clay that the system would not be successful. No hard and fast rule could, he said, be laid down as to method, but his experience was that drains 2½ to 3 feet deep, and about 7 yards apart, with not less than 2½-inch pipes, gave the best result. He also attached great importance to the drains having an air inlet at the upper end, which greatly increased their efficiency. Very little draining had been done in the last 20 years; this, he thought, was no doubt due, to a great extent, to the lack of inducement offered by the very poor return to the landowner from his land. The rents received from land drained and improved 50 years ago were to-day, he said, no higher, and in many cases lower, than they were before the money was expended. To induce landowners to expend money on draining, he thought it would be necessary to assure them that the same thing would not occur again, and this could only be done by assuring the tenant that the prices of his produce would not fall to so low an ebb as to prevent him paying a rent to cover such an expenditure. It would also be necessary, he considered, for the Government to lend money at a low rate of interest. These two essentials being secured, the State might make it compulsory for this work to be done under proper supervision. Mr. Clark thought that the same might apply to the tenant in connection with the use of proper fertilisers; if these were retained in this country compulsorily, then some means would have to be devised to compel their use on the land.

272. With regard to the agricultural labourer's wages, the witness thought that the question of a minimum wage in the northern counties would scarcely arise, as any minimum wage fixed would be much less than that which is now paid or was paid before the War.

Before the War the average wages paid in Northumberland, Durham, Cumberland, and Westmorland were as follows:—

—			Cash.	Allowance.	Total.
			s. d.	s. d.	s. d.
Northumberland	...	...	21 6	4 7½	26 1½
Durham	...	...	22 6	6 2	28 2
Cumberland	...	...	19 0	6 0	25 0
Westmorland	...	...	20 0	4 0	24 0

273. These wages, Mr. Clark stated, were for men hired by the year, which was the custom. For casual labour the most usual wage was 4s. a day, and with these wages men who are thrifty, and have a family who also work, soon save money and are able to take a small farm themselves. He considered it a remarkable thing that at least 50 per cent. of the farmers in Northumberland and Cumberland were originally farm labourers or the sons of farm labourers. One great mistake made by farmers was, he thought, that they did not pay their own sons who worked on the farm, but simply clothed, fed them, and gave them pocket money. These young men were told that they would succeed their father, but many grew tired of waiting and drifted into other work in towns, and thus were lost to the land. He thought this a serious loss, as those were often the very best men. With regard to the question of a minimum wage, Mr. Clark considered that it would be unpopular both with men and masters; the farm labourers in the North were, he said, very well able to look after themselves. If, however, it should be decided to fix a minimum wage by legislation, he was of opinion that it would have to be carried out by Wage Boards for each district; one Central Board for each county would not be satisfactory, as the conditions in each district vary so much. Also, if a minimum wage was paid, the tenant would have to be given some assurance that the price of his produce would be such as to enable him to pay it, or the consumer might be made to pay a part of what in some places would be an extra burden by relieving the land of some of the weight of taxation, local and imperial, which now fell upon it.

274. With regard to the tendency of young men to migrate to the large centres of industry, Mr. Clark did not think that, with the exception of shorter hours, any inducements which could reasonably be given and which would keep them on the land were lacking in the North. There could be no doubt that the attraction of the picture halls and the short hours of labour in towns did draw a large number of young men to the town from the countryside, but so far as money, outlook, and a healthy occupation were concerned, the farm labourer's lot in the North would, he considered, bear favourable comparison with any other industry.

275. Mr. Clark said that good cottages on a farm were a necessity. In the North the farms were fairly well supplied for the present conditions, but if a much larger area was brought under the plough the old cottages which had fallen into ruin in many cases would have to be rebuilt, or new ones erected, so as to accommodate the necessary labourers. A good cottage and garden should be part of the labourer's wage, and not rented to him. At present, in many districts, cottages which should be occupied by farm men were occupied by road men, policemen and others not working on the land. The employers of these men should be made to build cottages for them and so free those now so occupied for men on the land. Mr. Clark said that it had been suggested that where it is clearly shown that cottages are urgently wanted for the proper cultivation of the land, the State should step in and build them and let to the labourers. He did not agree with this view as it would bring in another ownership, which was, in his opinion, undesirable. He suggested that the owner of the land should be compelled to build what cottages were necessary, being granted cheap money to do so. If the tenant were given a guaranteed price for his produce, the landlord would be sure of receiving a steady and reliable rent for his land. To build at the present time was scarcely possible, as there was such a shortage of labour and the cost would be so great. Any scheme decided on must await the end of the War.

276. With regard to the advisability of assuring stability to agriculture by securing it against a recurrence of the disastrous fall of the price of its staple products, Mr. Clark stated that there could be but one answer, viz., that it was essential, if the supply of cereals was to be increased. The principal methods which he suggested were (1) a duty on all imported corn; (2) a bounty of so much per quarter on all corn grown in this country, if the price fell below a certain fixed standard; (3) a bounty on every acre of corn grown in excess of that grown at some fixed date. The first was, in his opinion, impracticable, as he could not conceive of the people of this country agreeing to a tax on the "Food of the People." The second was much more likely to be agreed to, as it would not raise the price of corn but would ensure the grower a minimum price for his produce. The great objection to this was that it might be held to be the means of increasing the rents of the landowners. If, however, the object of the bounty was fulfilled, viz., the increase of the cereal crops and thus also of the meat and milk raised in the country, the ultimate receiver of the benefit would not need to be considered. With this bounty he suggested a small duty or registration fee on imported flour, so as to favour the importation of grain, and thus gain the offer for the feeding of stock, so as to favour the importation of grain, and thus gain the offer for the feeding of stock. This minimum price should not only be fixed on wheat, but also on oats, and, possibly, barley.

He suggested that the minimum for wheat should be 40s. a quarter, and for oats, which in the North is a standard crop, 24s.; the latter figure, however, was rather low and should perhaps be raised to 25s. or 26s. The third method, that of giving a bounty for every acre of corn above the pre-war standard was, Mr. Clark thought, more cumbersome, and would take more administration, and had the disadvantage, in comparison with the minimum price, of giving the same benefit whether the crop was a good or a bad one, whereas the minimum scheme gave more if more and better quality was grown, and thus acted as a stimulus to produce as much as possible and of the best quality. It had the advantage of directly benefiting the grower. On the whole he favoured the second method, viz., the minimum of standard prices, below which, if wheat, barley and oats fell, the farmer would be paid a bonus. Many, he said, advocated this system only for 5 or 10 years; he could not, however, agree with this view; it should, in his opinion, be a settled policy. If the prices of cereals kept up nothing should be paid; if they fell below the standard it would be clear that help was wanted, otherwise the farmer would cease to grow corn and fall back on laying to grass again.

277. Apart from this artificial stimulus to agriculture, Mr. Clark said that he looked to "Education" as the greatest asset. Much had been done, but much more remained to be done. Instead of having one education centre and experimental farms for two counties, one was needed for each district, with skilled teachers who could move about amongst the farmers and give advice, and, still better, show them by reference to the experimental farms how they might get the most out of the land. They might even make experiments on each farm to show still more directly what could be done. These farms should, if possible, be made to pay.

278. In reply to questions, Mr. Clark said that he entirely agreed that if the State were prepared to give security to the farmer in order to increase the home production of food, it could not afford to risk failure, and would be justified in taking powers to put pressure upon a landowner who failed to respond to national requirements. While he looked to educational methods to bring about improvements, he thought it would be fair and necessary for the Government to be given compulsory powers. Before the War, agriculturists would have received such a suggestion with great opposition, but the position had considerably changed. No doubt many farmers would object to ploughing their grass lands, and it would be necessary to set up some local organisation to decide what land should or should not be broken up—local knowledge was essential. He was not in favour of Land Courts, and did not suggest any interference between landlord and tenant on the question of rent. They were quite well able to come to an agreement between themselves.

279. With regard to the method of calculating the payment due to each farmer in the event of the market price of wheat and oats falling below the guaranteed price, Mr. Clark said that the details of the scheme presented serious difficulties and would need careful consideration. If the payment was based on the quantity sold, there was a danger, no doubt, of the same parcel of wheat or oats being paid on twice; there was also the more serious difficulty of the effect on the farmer who grew oats for consumption on the farm. He would either obtain no benefit from the guarantee or he would be forced to sell his oats and buy other feeding stuffs. The danger of forced sales would be that farmers would sell oats of all qualities, and thus depress the average market price, which would result in a larger payment being made by the State. On the other hand, if payment were to be based on the quantity of wheat and oats threshed, it would probably be necessary to arrange for the attendance of an official at threshing time, and, as many farmers in the North threshed weekly, this would be a serious matter. At the same time, Mr. Clark said that if farmers desired to benefit from the guarantee, it might not be unreasonable to require them to thresh in larger quantities. The difficulty might be overcome by arranging for the standing crop to be estimated before harvest. This was commonly done in the North in connection with surface subsidencies, and there were men who were specially skilled in work of that kind.

280. Mr. Clark agreed that there would probably be considerable difficulty after the War in securing sufficient labour for agriculture, especially if the arable area were increased. In the North, although wages were good, there was a shortage of labour before the War. A reduction of hours would probably do more than anything else to keep labour on the land. Labourers' sons often succeeded in getting smallholdings and then larger ones; this had the effect of fixing men on the soil and was to a certain extent a counter-attraction to the towns. There was some tendency for men to change their employment as hirings came round. The giving of a half-holiday during eight months of the year had worked well. In cases such as that of a cowman, where a half-holiday could not conveniently be given, men were granted a few whole days' leave at slack times of the year.

281. On questions which arose in the course of the examination, Mr. Clark expressed the opinion that at the present time farmers in the North would not be prevented from extending their arable land by reason of lack of capital. He did not consider that there were any conditions of tenure which would need amendment in order to encourage increased production. He agreed that it would be a great advantage to farmers themselves if they were compelled to keep accounts so as to have their income tax assessed on their profits, not upon their rentals, and there would be no serious difficulty if they were required to do so.

or even 16s. a week was not a reasonable wage to expect any man to work for. The witness said that the proposal to establish a minimum wage for the ordinary agricultural labourers raised serious difficulties. He did not see how it would work. It should be remembered, he said, that the farmers, as a rule, only got labour which was not good enough for any other industry. In the schools the bright lads were taught to find some better occupation than employment on the land. If a minimum wage was established, it would mean that farmers had to pay a large proportion of their labourers more than they were worth. He would willingly pay all he could afford to, but to be told that he had not to pay less than a certain minimum raised the difficulty that the older and inefficient men should be paid less. At the same time, he agreed that if some form of security was given to the farmers, it might be necessary to associate with it some scheme by which the labourers received their fair share of any additional prosperity. He could not see any way round the difficulty of classifying the men according to their work. He was opposed to the proposal to set up district boards, as he very much disliked the idea of farmers forming unions to discuss what wages they would pay. In spite, however, of his objections to the scheme, if it was felt that in order to keep the agricultural labourer on the land it was necessary to secure to him a minimum wage, he would do everything in his power to help to carry it out.

287. Mr. Berry emphasised the importance of education in influencing increased production from the land. In Kent they had found the College at Wye immensely useful. Whenever he found himself in a difficulty he at once telephoned to the College and they sent a member of the staff to advise him. He could not have succeeded as he had without the assistance of Wye. In the last few years a small fruit station had been started in connection with the College at Malling, in Kent, and he thought that it would prove exceedingly useful. Mr. Berry looked to education and the more scientific training of the younger generation to bring about great improvements in farming. He said, however, that the nation could not wait for the results of education, and, although he would not like to suggest the form of compulsion which should be adopted, he felt that some compulsion was necessary to bring about increased production. Bad farmers should be compelled to improve their methods; landowners who allow the farms on their estates to be run down, or who manage their estates for game only, should be compelled, by some authority to be provided, to do better in the national interest. If this were done, all the best farmers and landowners would give it their support. The fault rested generally, not with the old-established owners who were in thorough sympathy with agriculture, but with the new rich men who had bought estates merely for the shooting, and cared nothing about what they otherwise produced.

288. Mr. Berry said that a general opening up of the canals in the country would be a great help to agriculture. He believed that certain canals had been closed so that the traffic should be compelled to go on the railways; that was not in the interest of agriculture. If that question could be looked into it would be extremely helpful. The classification of goods in respect of railway rates was a great difficulty. If he sent a ton of plums to Manchester he had to pay about £2 15s. A ton of flour would be carried for £1, just because of the difference in classification. But an acre of a good crop of plums would grow 5 or 6 or 7 times the bulk that an acre of wheat would, so that the whole scheme of classification worked out injuriously to the farmer. Mr. Berry urged that a reclassification was necessary in the best interest of the country, and in order to stimulate intensive systems of farming.

15th Day, 7th December, 1916.

MR. HENRY OVERMAN.

289. Mr. Overman, who farms, in partnership with his brother, 3,700 acres of land in Norfolk, and 1,000 acres in Northamptonshire, said that in the latter county there was a large quantity of grassland (storeland) that might and ought to be broken up, and he believed that the same could be said of other counties in the Midlands—land that does not now produce a sufficient quantity of beef, mutton or milk. If it were broken up and worked in conjunction with the fine old pastures in those counties, the production of cereals, and also beef, mutton and milk might be enormously increased. It was well known that the amount of beef and mutton that could be produced from arable land greatly exceeded the amount produced from the same area under grass. In Norfolk, however, there was very little grassland (which would be worth cultivating) available for breaking up; indeed, in that county there was a shortage of accommodation grassland. A good deal of pasture would pay for being improved as grass, and other should be broken up. The cost of breaking up was, however, very considerable. He had broken up in May, 1916, 36 acres of storeland in Northamptonshire which he had mole-drained. The cost, allowing for two years' rent, for the reason that no crop was obtained in 1916, amounted to £13 15s. 5d. per acre. The detailed items were as follows:—

Two years' rent at £1 per acre, £2; Two years' rates, insurance, &c., 15s.; Drainage, £1 10s. 6d.; Ploughing by steam, May, 1916, £1 1s.; Cross cultivating by steam, twice, 16s. 6d.; Cultivating by tractor, twice, 8s.; Rolling, twice, 10s.; Ploughing for crop by horses, £1 17s. 4d.; Rolling before sowing, 3s. 6d.; Harrowing, four times, 9s. 7d.;

and that it was a matter for the State, which might arrange to lend money to the owners for the purpose, the tenant paying his part of the cost in the form of increased rent. When wages were as low as 12s. a week, the labourer could not pay more than a shilling a week as rent for his cottage; now, however, that wages were much higher, he thought it would be desirable to put cottage rents on an economic basis. Mr. Overman agreed that it would be impossible to carry on farming without a certain number of cottages being let with the farms.

295. With regard to the supply of artificial fertilisers, Mr. Overman said that not one farmer in a thousand was able to buy his manure in September because he had no place to store it. He suggested that in Norfolk every assistance should be given for a large supply of artificial manures being provided through the West Norfolk Farmers' Manure Company, who practically supplied every farmer in the county; this would enable farmers to grow continual corn crops. In the spring of 1916 only a limited quantity was available and the shortage would be greater in 1917. The price would also be very much higher. If farmers could obtain manures for corn growing at an economic price, the increased growth of cereals in Norfolk would be enormous. The State should give every facility for the production and use of fertilisers. He said that there would be very great difficulty even after the War in obtaining manures. The works in Norfolk had been taken for munitions, and it would be necessary to build new premises. As regards sulphate of ammonia, he suggested that before large quantities were exported, farmers should have the opportunity to buy at an economic price. Before the War it was cheaper to buy nitrate of soda than sulphate of ammonia.

296. Mr. Overman said that the drains put down 40 to 60 years ago were practically useless now; they were put in much too deep. If grass land was to be broken up, much of it would need draining. His own experience of mole-draining in stiff wet clay had been very successful, and he suggested that great advantage would be derived by impressing on farmers the advantage of this method of draining.

297. In reply to questions as to the cultivation of sugar beet in Norfolk, Mr. Overman said that some men had been able to grow beet and make it pay; but at the Demonstration Farm at Soring they had always lost over the crop, owing to the high cost of cultivation; moreover, on the light land there had been no benefit to the other crops in the rotation. Another reason why sugar beet would not be likely to succeed in Norfolk was that farmers needed all the turnips and roots they could grow for cattle food, and they would have to reduce their flocks and herds if they substituted beet for their present root crops. Asked as to the value he attached to roots grown for cattle food, Mr. Overman said £5 an acre. Sugar beet, however, he considered cost £12 an acre to grow.

298. On the subject of agricultural education, Mr. Overman said that it was very necessary that an agricultural organiser, part of whose duties it was to visit farms and advise farmers, should be a practical man, able to talk as a farmer and not as a scientific man only. He thought that money expended on scholarships to enable the right sort of boys to attend an agricultural college was well spent. He knew of some half-a-dozen men farming in Norfolk who had passed through the School of Agriculture at Cambridge. The staff at Cambridge had rendered very valuable services in connection with the Demonstration Farm at Soring in Norfolk. This farm was started and maintained by private subscriptions from agriculturists themselves in the county, and was carried on under the supervision of Cambridge. It had proved of immense assistance to Norfolk agriculture, especially in testing new varieties of cereals, from which, particularly in the case of barley, farmers had very greatly benefited. His experience of the work at Soring justified Mr. Overman in saying that a station run on similar lines would probably prove of the greatest value in every county.

MR. R. G. PATTERSON.

299. Mr. Patterson, who farms 600 acres in Staffordshire, of which about one-half is arable, expressed the opinion that the arable land of the country was not producing as much as it could produce, nor as much as it had produced in the past. When prices became very low farmers could not cultivate intensively. Increased production would also be secured by a more scientific use of artificial manures. Farmers placed too much reliance on mixtures of artificial manures, and not one farmer in ten troubled to obtain an analysis of the mixtures he bought, which in many cases were entirely unsuited to his particular soil. It was very desirable that farmers should make themselves acquainted with the food required by their own land. He considered that there was evidence of a growing interest among farmers in scientific manuring. This was largely a question of agricultural education, to which Mr. Patterson referred later in his evidence. Other means of increasing the production of arable land were the use of improved seed and a constant change of seed, also a reduction in the area devoted to temporary pasture, and the better conservation of farm-yard manure, which at present is subject to great waste. He considered that the loss in farm-yard manure due to open yards amounted often to 30 per cent. In his own case only one-fifth of the area of the yard was covered. He regarded it as very desirable to cover in all open yards. By the methods mentioned, Mr. Patterson considered that an increase of 15 to 20 per cent. might be obtained in the produce of arable crops, without any reduction in the production of meat and milk.

300. Another means of increasing production was, Mr. Patterson said, by adding to the arable area. Much of the interior grass land would be better under the plough, and for this purpose a bonus might be offered for a period of years, which would probably hasten the process, but more intensive cultivation was impracticable unless a higher level of prices was obtainable. To secure this he considered a tariff the proper means, though a guaranteed minimum price for wheat might, under the special circumstances, be necessary. The variety of land to which he referred was very unproductive at present, and with reasonable prices secured it might be made to be profitable, but the farmers would not do it until they were secured of a reasonable return for their capital. One of the difficulties was the great risk of wireworms, and farmers would not undertake to break up having regard to that risk. On the other hand, there had been two cases of adjoining farms where grass land had been successfully broken up. He did not like the proposal to fix a minimum price, and thought that farmers generally would prefer that a tariff should be imposed on imported wheat which would put them on an equal footing with their foreign competitors. If a sliding scale duty was practicable, that would be the simplest scheme. If not, it would be essential to combine the State guaranteed price with an import duty. He was considering the question entirely from the point of view of national requirement and not from the point of view of farming profits.

301. Mr. Patterson said that a large proportion of grass land was at present not being economically managed; the practice of grazing large areas continuously was wasteful, and in many districts little attempt was made to improve pastures by the skilful use of artificial manures. A great deal of grass was not treated at all, and in many cases the fences were allowed to fall into a lamentable condition.

302. Mr. Patterson said that there could be no proper cultivation of land that required draining. On well-managed estates, where proper plans of the drainage system had been kept, probably little would be required; elsewhere there might be some 20 per cent. requiring re-drainage, and a considerable quantity of patching of old drains would be wanted. He said that in many districts no drainage had been carried out for years, and where there were no plans available, it might take a week to find the drains, some of which might be as deep as seven feet. Difficulties were constantly experienced owing to outfall of water from one farm being on another farm belonging to a different owner. It was very necessary to consider the whole watershed. The same applied to water courses; in very wet weather rivers often overflowed their banks because the water could not get away lower down.

303. Asked as to the proposal to secure by legislation a minimum wage to the agricultural labourer, Mr. Patterson said that the scheme had many disadvantages but might be the lesser evil. He preferred the term "standard" wage. He considered that the establishment of a minimum wage would be putting a premium on inefficiency. It would reduce the whole of agricultural labour to a machine. Many men receiving 25s. a week were much cheaper than others earning 12s. a week. His experience, after farming in different parts of the country, was that the further south he came the less efficient he found the labour. He agreed that after the War, ex-service men would not return to employment on the land at the low wages which were often paid before the War, and he would not wish them to do so, but he regarded the proposal to pay an increased wage in order to obtain increased efficiency as analogous to putting "the cart before the horse." He had always found in farming that an improvement in wages led to trouble and often to men leaving their employment. He looked to better education and the raising of the moral standard of the men, to result in them giving a good day's work, which would lead to them receiving a good day's pay. He preferred the term "standard" wage because he thought that men seeking employment would know how much to ask. He was anxious to get round the sentimental objections to a minimum wage; if a workman for some sound reason was being paid less than the minimum, he would consider that he had a real grievance. Nevertheless, he did not suggest that the minimum wage scheme was unworkable; indeed, he thought it might prove necessary to adopt it. On the other hand, Mr. Patterson did not consider that a flat minimum rate for the country as a whole would be practicable. If the minimum was to be fixed by the wages current in the North, it was essential to see that the number of hours worked in the North were also adopted in the South.

304. As regards the housing of agricultural labourers, Mr. Patterson said that not only were more cottages required, but those in existence needed improvement. No family should, in his opinion, be allowed to occupy a cottage with less than three bedrooms. In his district, no matter how limited the accommodation might be, nor how large the family, the labourer's wife insisted on taking in a lodger. Landlords should be compelled to build, and the Government should provide capital, where necessary, at a reasonable rate of interest, but steps would have to be taken to secure the use of these new cottages by agricultural workers. Many of the rural cottages were at present occupied by workers in the towns who cycled to and from their work. The scarcity of accommodation was so great that the first question he was asked by men seeking employment was, "Have you a cottage for me?"

305. Mr. Patterson advocated an extension in the provision of agricultural education and technical advice for farmers. He said that the attitude of farmers on this matter had very greatly changed in recent years. At one time the number of farmers who visited the Harper-Adams College was limited to a dozen or so each year; now it was necessary, even in conditions like the present, to set aside two days to accommodate the farmers who wished to inspect the experimental work carried on at the College farm. He did not consider that farmers took full advantage of the opportunities offered by the College for seed testing, &c., but there was a growing interest in these matters. In Staffordshire, a scheme of agricultural education had been in operation for several years, and the County Council was alive to the needs of the

agricultural community in this respect. He did not consider that any money expended on agricultural education had been wasted. The agricultural instructor, in normal times, devoted much of his time to visiting and advising farmers; at present he was engaged on War Agricultural Committee work. The county scheme should be extended by the establishment of a Farm Institute.

306. Agricultural co-operation, Mr. Patterson said, had not made much headway in his district. One objection constantly urged by farmers was that co-operative societies asked them to buy goods but they never assisted them to sell their produce. He had an objection to co-operation on broader lines. He considered that farmers were already too much cut off from touch with men in other industries, and the result of the development of co-operation among farmers might be to accentuate this evil.

307. Mr. Patterson said that it was very necessary to secure the farmer against disturbance. The breaking up of estates in recent years had been very serious and had put agriculture back very much. While the Agricultural Holdings Acts had had a beneficial effect, there were certain matters connected with land tenure which needed improvement. For example, it took a tenant years to learn how to farm the land he occupied to the best advantage, and he could not be expected to farm it to the best of his ability if he was liable to be disturbed at any time. He suggested that a law should be passed to secure to the tenant the full value of any improvements he had made on leaving a farm. While the landlord was entitled to the increase in the value of the farm due to a rise in the value of agricultural produce, the tenant should be given the increased value due to the result of his own good farming. He would give the leaving tenant the right to select his successor, subject to the landlord's approval, and a saleable right in his lease. This might involve the intervention of a valuer to prevent the possibility of a bogus offer being made. On the other hand, he entirely agreed that there were many tenants who were not making the best of the land they occupied, and he considered that steps should be taken to remove them, as well as to see that landowners managed their estates to the public advantage. He would like to see landlords do more than just collect their rents. If they took a personal interest in their farms and were able to talk intelligently about farming to their tenants it would prove a great inducement to farmers to improve their methods. In a great many cases there was undoubtedly a serious loss owing to the over-preservation of game. At a time like the present, everything taken by game was a loss to the country, but in normal times there were corresponding advantages. Generally speaking, money spent in a district tended to the benefit of the district. It was the abuse of sporting rights which was the difficulty.

308. Mr. Patterson emphasised the need for a change in the national attitude towards agriculture. He said that the stability of agriculture could never be secured until the general public recognised its importance, and it was for the Government, by its treatment of agricultural questions, to show the way. One of the great causes of the dearth of agricultural labour was that popular feeling was so contemptible towards anyone who had anything to do with land. He had one or two young fellows working for him who were very keen horsemen, but they were sorely tempted to leave their work, because they said that if they went into Stafford they were treated as "country clods." That feeling had become common among the town population. The younger generation in the country felt that if they wanted to be treated on an equality with their fellows they must leave agriculture. When the Government took a fair stand and said that agriculture was the best industry in the country, then the people would cease to feel that they were useless members of the community. The Government had never told the farmer that he was doing his duty, and the feeling of discouragement among farmers was intense. Apart altogether from the question of war, the best interests of the country were bound up with the prosperity of agriculture: the more prosperous the agricultural class was, the more prosperous would every other class be. It was the duty of the Government to put these facts clearly before the public.

16th Day, 30th January, 1917.

THE RT. HON. F. D. ACLAND, M.P.

309. Mr. Acland stated, at the outset of his evidence, that his views on the functions, equipment and status of the Board of Agriculture and Fisheries were based to a considerable extent on his experience in other offices besides the Board, viz., the Board of Education, the War Office, the Foreign Office, and the Treasury. The first point he made was that if there were to be a big agricultural policy directed by the State, all questions of rural well-being ought to come under the purview of the Department which directed it. He thought, for instance, that such questions as rural housing and wages should rest with the Board of Agriculture rather than with the Local Government Board.

310. Mr. Acland's second point was that none of the men in the Board of Agriculture were recruited from the highest Civil Service examinations, Class I., as had been the case in other offices in which he had served. The Board, he said, was admirably served by most devoted public servants, but in almost every department up to the Assistant Secretaries, there was an absence of really first class executive administrative ability. He had found that Class I. men were, as a rule, men of considerable ability and possessed of initiative and powers of taking responsibility. Men of this stamp would have made a great difference to the Board in this war and would have saved money 100 times over. He did not deny that some of the men who constituted the staff of the Board of Agriculture had these qualities, but he emphasised the fact that this was mainly by accident. The effect of the different standards of staffing existing in the Board of Agriculture was that the Assistant Secretaries were flooded with masses of detail which they ought to have been able to delegate to members under them. He did not, however, believe in the product of the first class examination without some qualifications. He had been in offices like the Board of Education where these men were wholly appointed, and the War Office where they were examination products, and he had come across men of both these classes who were no good. In the Foreign Office the men were a combination of the two methods, and he believed that there was a considerable future for a system of the combination of selection and examination, in order to produce the highest type of civil servant.

311. Mr. Acland considered that no one should be allowed to enter an office and settle down to administrative work without having been compelled to work outside the office for at least two years of the first six or seven that he occupied his position. He had come across cases, as in the Foreign Office where the clerks were so good, where men had suffered from having had no experience abroad at some legation or Embassy. He could think of no better way of getting the material which the State so much needed into offices, than by a combination of examination and nomination for obtaining men in the first place, and by making it compulsory that they should spend at least two years outside the office altogether, either in inspection or in the office of one of the big Local Authorities. Mr. Acland thought that there was a great want of touch between the services of the Local Authorities and the services of the State, and that if there were some co-operation between the two, such as training one another's men, it would be an enormous advantage to both of them.

312. Another point, which Mr. Acland thought would only be appreciated by those who had been inside the Board of Agriculture, was that in principle Treasury clerks should not go direct into the Treasury. No one, he said, should go there until he had had a real experience of a Department which existed to get things done.

313. Mr. Acland thought, too, that there should no longer be the very big distinction and discrepancy between the salaries of Ministers who were at the head of offices of that kind. It was, in his opinion, ridiculous that some Ministers should receive £5,000 a year and some, as at the Board of Agriculture, should receive £2,000 a year. As long as this continued the Presidency of the Board of Agriculture, for example, could not be included in the highest rank of Ministers. Appointment to the head of this Department should be the summit of any man's ambition; but as long as the discrepancy in the heads of different Departments existed this could not be. One Department had already suffered from the fact that certain pushing people had regarded it only as a stepping stone to higher things and had not really devoted their energies to making it the greatest possible success. Mr. Acland thought it impossible to over-estimate the harm which could be done to an office when its Assistant Secretaries were over-worked and where everything was as much concentrated as was the case at the Board of Agriculture. Too much, in his opinion, depended on the President and the Parliamentary Secretary. Unless there were men of real standing and ability in the office in addition to the Assistant Secretaries, too much would depend on the Parliamentary phantoms who fitted through it from time to time.

314. With regard to the staff of the Board of Agriculture outside the office, Mr. Acland considered that the State should take a leading part in seeing that the land produced what it should, and for this purpose he thought there should be a set of first class men who would be links between the men on the land and the Board of Agriculture. The Board was, he thought, particularly weak in that respect at present. He did not think it advisable that all the Board's inspectors should be all-round men, but he felt that there ought to be divisional inspectors who would be generally in touch with the work that was being done by the inspectors of all different kinds, and who should be men of very good position and experience, who could be trusted to send in a first-rate report on any matter which might arise. He thought the Board would want inspectors of general experience in charge of the inspectorate of all sorts in the district or in close touch with them, but men of the calibre on which you can hang your hat, and there were not enough of such men in the provinces at present.

315. Mr. Acland further suggested that Agriculture should no longer embrace Fisheries. He thought it important that Fisheries should be a unified administration covering the whole of the United Kingdom. As there had been what he considered the disastrous formation of the Scottish Board of Agriculture in addition to the English Board it was quite impossible to unify the fisheries so long as the three Departments existed, and he suggested that fisheries were more akin to the Admiralty than to agriculture and that they might not unreasonably become a sub-department of the Admiralty. The Admiralty, he said, was a very strong office, and had been more successful in its conflicts with the Treasury than had other offices. In the Board of Agriculture at the present time fisheries were practically run as a separate concern. For every one paper he saw on fisheries, he had seen several hundreds on three or four other branches in which the Board's work was arranged, and from that point of view it was clearly advisable to put it under one Department. Agriculture, he said, had so little to give to the Fisheries that he considered it would gain strength by being unified and would become more important than it was now. Agriculturists, in his opinion, knew very little about fishing except as regards poaching.

316. Mr. Acland explained that he had spoken of the creation of the Scottish Board of Agriculture as a disastrous proceeding because, in his opinion, the fact that agriculture did not speak with one voice minimised the weight which it carried. The English Board, he said, was inclined to forget the existence of Scotland in dealing with matters, and he thought that this had acted unfavourably on the position of the Board of Agriculture. With regard to Scotland he was of opinion also that it was most desirable that the Minister at the head of the agricultural department should be one whose attention was devoted exclusively to agriculture. He thought that the difficulty of getting Ministers to learn their department was great enough by the shortness of their tenure of office and other things, and if, in addition to all that, the Minister had half a dozen different offices to attend to, he thought the general results must be still worse. It must, he said, be tempting for the Minister to try and get other people to do the work which he should really do himself. He believed that the system of having Ministers coming in from outside would be quite a good one if the Ministers would concentrate on one set of subjects.

317. With regard to the organisation of the Board of Agriculture, Mr. Acland considered that its comparative weakness might be due, to some extent, to the fact that it had had entirely to change its functions during the last 20 years. It was set up simply as a body to administer certain Acts. It had been obliged, sometimes against its wish, to become a constructive and active department, and it had not fitted itself entirely into its new environment; it had not had time to develop its functions. He thought it might be possible to let men of a lower grade take over important questions if they had the right type of ability. That, he said, was often done in the Foreign Office, but when he was Financial Secretary to the War Office, there was some difficulty in getting people to take responsibility. He agreed that it was a tradition of the Board of Agriculture that nobody should have responsibility until he was in a position to undertake it, and he thought that in any office it was always difficult to prevent over-centralisation. What he would like, Mr. Acland said, would be to see the Board of Agriculture raised to a first class Department with England, Wales and Scotland as Sub-Departments, and the Fisheries as another Department.

318. With regard to agricultural organisation, Mr. Acland said he wished the Sub-Committee to understand that he spoke with great diffidence. Eighteen months' experience of the office of the Board of Agriculture during the War had not been anything like enough to enable him to speak on this subject with any confidence. He thought that obviously one of the most important things to be done was to get English farmers to co-operate with one another. It was difficult to get Irish farmers to combine, although there was something there much more approaching life in society, and in England it was much more difficult. He thought that one reason for this was that, to many farmers, their trade existed in trying to "do" each other which made them very suspicious and prevented them from co-operating with other farmers. He thought also that co-operation had been kept back by the fact that life had been, in a way, too easy. There was always the landlord to lean on. Farmers also did not like to be known to be making money, having a fear, generally groundless, of increased rents; and this made them disinclined to combine. Someone who knew, Mr. Acland said, told him that probably more money had been put by farmers into picture palaces than back into the land during the last five years. It was only a little worse in agriculture than in other things. The Chambers of Agriculture did not, in his opinion, do much more than state their grievances, but neither did the Chambers of Commerce. As to the Agricultural Organisation Society, he felt that it did not pull its weight. The novelty of the work had somewhat worn off and the number of people who had given a considerable proportion of their lives at headquarters was very small. He had not seen much evidence that it had been possible to substitute for the vitality at the centre a real vitality in the provinces. That, he said, brought him to the question of how to get real vitality in the unit bigger than the county. He felt that the vitality had rather left the Society in the centre and had not, perhaps, developed sufficiently in the provinces. While feeling it rather stupid to make these criticisms and suggest no cure, Mr. Acland said he had great hopes that Lord Selborne and one or two others, having agreed to help the Society and look into certain matters, would have a good effect on the work. But it ought not, he said, to be a postulate that under no circumstances could the State take over the work and try to do it itself. The Society and its agents and representatives had tended not to be quite clear as to whether their job were better agriculture or better trading. One did not feel, Mr. Acland said, that the movement counted for very much. A good many people joined a local society, but did nothing; they did not get the best out of human association, so to speak. There was a lack of interest in the society, and it became a set of individuals who found it paid to deal with certain matters only. In his

experience as a Governor of the Society, he had found that the energy of Governors and others was not directed to the real problems of organising; he had not given that energy himself and there were too many others like him. He agreed that local success depended very largely on the individual who took a hold on the society. He thought it difficult to get either the people in the central governing body or the members of local associations to take a sufficiently active interest in the development of co-operation. That, he considered, was partly due to the fact that co-operation came to them as a factor introduced from outside and not as remedying a grievance of which they were intimately conscious. Mr. Acland felt that the scope of agricultural organisation and co-operation among large farmers was a very difficult thing to dramatise about. His own feeling was that even among large farmers a great many had still a good deal to learn, and organisation in general among them might be carried with advantage to a higher pitch in agriculture with regard to newer methods, &c. Mr. Acland considered, however, that there was a great disadvantage in the suggestion that the Agricultural Organisation Society should work on small holdings to begin with. Whenever one mentioned it to a big farmer, he would say:—"Oh! yes, that is all very well for the little farmer, but it's no good to me." That, Mr. Acland thought, gave it a bad name. He did not want to criticise the Agricultural Organisation Society; he thought that their task was one of almost superhuman difficulty with the material they had had.

319. With regard to the question of whether the State ought to take over the whole agricultural organisation, or whether the organisation of each county should not be definitely a function of the county staff, Mr. Acland thought that the State ought to preserve an open mind, and watch very closely, and not take it as a foregone conclusion that agricultural organisation must remain outside the public authorities. There was very little to stimulate the organisation movement without a good deal of State assistance put into it. Mr. Acland admitted, however, that those weaknesses which he had pointed out might be developed by departmental control. Co-operation, he said, roused a good deal of local antagonism in interested persons, but he felt that it might become so vital to have agriculture properly organised that it would be necessary for the State to face such antagonism, either through its agents employed from headquarters or by the counties. He preferred a movement which had active enemies to one that had none because it was not worth fighting about. He admitted that if the work of co-operation were associated with the work of a County Organiser, it might handicap him, and that he would only advocate the co-operation of this work with the Department of Agriculture if it were quite clear that the present voluntary method were a failure; in fact, he said, it was up to the present method to prove that it was a success. Local societies, he agreed, were very dependent in practice upon local interest and support; it was work which required a good deal of voluntary assistance. He thought that might still be got with a State-aided policy, and in any case, he felt that if more real work could be done, such matters should be pushed aside. He considered that co-operative societies could not do much until they really had the interest of both farmer and landowner behind them; any success depended on getting those concerned really interested and working hard at it. He could not go beyond saying that, unless means were found of really developing the policy of the Society, the State ought to consider whether the present state of things should go on.

320. Mr. Acland stated that, while the last two years had been rather a bad time for forming a valuable opinion as to the scheme of agricultural education which the Board of Agriculture and the Development Commissioners had decided upon, he wished to say that he had a very great belief in the scheme, which had now been worked out and set going in skeleton form. He thought what had been done for agriculture by the Development Commission was quite a splendid piece of work, and it seemed to him that the whole scheme of what should be the requirements of the agricultural population and of improving agricultural knowledge and agricultural practice was well founded and well devised. As more institutions of certain types were established, more money would be required and would be given automatically under the different schemes at work, particularly the Farm Institute Scheme, and therefore, although he did not say that enough money was now spent on agricultural education, he pointed out that the grants actually given were five times as much in the year 1913-14 as they were in 1909-10. That, he said, was a very great advance, so far as the State was concerned, and he only wished the agricultural community had taken full advantage of it. He thought, however, that there was not at present a sufficient supply of money to work the system, and he believed it would be found that in agriculture as in other things, if good teachers were to be secured the general position of teachers all round would have to be very considerably improved. That, he said, was particularly essential in any subject such as agriculture, which was based on science, because, in his opinion, it was clear that a man of any sort of quality of brain-power who had had in his scientific training would have such good prospects in industry that there would have to be a real improvement in the prospects of teachers if teaching were not going to be merely the drudge of teaching. That, he said, was true all round and of agriculture as well. While the latest figures of the Board of Education showed that an assistant teacher in a State-aided secondary school had an average salary, after eleven years, of £168, in future, Mr. Acland stated, really good men would not be attracted until they could look forward to being paid say, £500 or £600 a year. He thought it would be impossible to obtain men of the right stamp for County Organisers or Advisory Officers (in the technical sense), or teachers either in the Agricultural Colleges themselves, or the Farm Institutes, unless that sort of prospect were held out to them, and in that he included the lower type of Institute, viz., the Farm Institute as well as the Agricultural College. There was a tendency, he said, in some quarters, to regard agriculture as a simple question. He thought, however, that there was still an immense amount to be learnt in agriculture, even by the very best men that we had, and he wished to make it quite clear that everything which was needed for the highest development of the science of electricity, physics or optics would be

equally necessary for agriculture, which could not be put on a lower plane. Mr. Acland believed that agriculture was one of the most difficult sciences, because it was ground on which many others joined. The highest knowledge of chemistry, physics and biology came into play, and had to be combined and related to one another if the highest work was to be done. The only practical application he wished to suggest in that respect was that the period for which research scholarships should be tenable should be extended in certain cases, and that the State should not be afraid of extending the number of such scholarships. He believed that, if they did not try to do too quick, they would get very good results which would be well worth the expenditure. Mr. Acland considered that the Provincial Councils were rather on their trial. They had not executive powers—that lay with the County Councils. There was the difficulty, he said, of getting real patriotism, real keenness, into an area smaller than the country and bigger than the county. Obviously, he thought, if the local Agricultural College were to be of the highest use, it ought to be started on rather broader lines than could be done in any particular county. However well a particular county might be supplied with particular Farm Institutes, it would be necessary to have some real organisation to ensure that the best use was made of the advisory officers and the work of the Agricultural Colleges. If, Mr. Acland said, he were to criticise agricultural education as it now is, he would say that the weakest point was the small amount of actual teaching given to students during the years of maximum teachability (from 18-23). There was wonderful and splendid work being done in the Agricultural Colleges, very good research work in the Research Institutes, and very good work by the counties, but the weak point was the small number of young men who were actually in attendance at colleges and institutes for regular agricultural instruction. He believed it was necessary to develop the Farm Institute, and that this would have a good, rather than a bad, effect. If he had to concentrate in one phrase the next step to be taken, he would say, secure the universal setting up of Farm Institutes in each county. It was good, of course, to have instruction in cheese-making and in all the other agricultural arts, but in some counties the county staff thought that no one need bother about anything more than this. He thought the existence of a central Farm Institute where they would be really carrying on their own studies and their own investigations in practical matters, and not simply relying on what they had learnt some years before, and where the provincial advisory officers would come to help farmers and the county staff, would help to improve the standard. The idea of a Farm Institute was, Mr. Acland said, that the instructors should have somewhere to practise what it was their job to preach. He did not think the ordinary boy who had been at an ordinary secondary school was in a state to benefit from a course of instruction at an Agricultural College, but thought that a short course at a Farm Institute, developing habits of mind and thought, and demonstrating and teaching the arts of agriculture, would often lead students to go on to the Agricultural College, where the equipment would be better and there would be visions of research. Mr. Acland said he would like the six months' course at the Institute to be the rule for farmers' sons who were going straight back to the farm. These Institutes, he explained, were financed by the counties with generous grants from the Board of Agriculture. He considered, however, that still more liberal assistance should be given, in order that the teachers should be better paid.

321. With regard to the specific education of the labourer, Mr. Acland said he hoped that a system of education would be made compulsory for boys and girls from 14-17 years of age, and that many varieties of courses would be contained in that education. He thought that schooling should be compulsory up to 14 and then agricultural training compulsory for three years after. The Farm Institute, he considered, should be capable of taking pupils who had had that training, as well as those from a secondary school. It ought to be open to both classes of pupils. He did not think it would do at all for secondary schools to take the place of farm schools; they were probably the best set of schools we possessed for giving a modern education. Mr. Acland did not think, as a matter of fact, that if general sciences were well taught in the secondary school side by side with other subjects, it would matter very much if agriculture were not introduced. He thought it might be better to exclude it, because the type of teacher there would not teach it sufficiently well, while if he were good enough he should be a teacher in a Farm Institute, and not in a secondary school.

322. Then, Mr. Acland said, there was the question as to whether the counties would set up Institutes of their own without grants. It would be very difficult to have educational Institutes in a county run purely by the State apart from the County Council; it would be difficult, he thought, to secure that the county made full use of Institutes of that kind, and to prevent the slack counties being rewarded by the State stepping in and doing their job. But he thought that the State would have to be ready to contemplate having to step in and get the work of setting up schools to which farmers' sons would go started. That was what, in his opinion, ought to be the basis of the whole pyramid of agricultural education, and the absence of that was brought home when one remembered that Lord Reay's Committee prophesied with some confidence that there would be some 50 to 60 Farm Institutes set up within the next ten years.

323. With regard to the education of the future landowner, Mr. Acland regarded the subject as of most vital importance if the system of landowning, as we knew it, was to survive at all. He thought it was studied from the point of view of the science and economics of agriculture to a greater extent in other countries than in England. A house-master at Eton, he said, had done his level best to get his pupils to determine that they would go through an agricultural course at a University, and had entirely failed. An entire indifference to learning was characteristic of our wealthy classes. The business man had, for instance, never shown any keenness to send his son, after his University course, to the London School of Economics. He thought more might be done if it could be impressed upon parents that, after the son had taken his Degree at the University, he should then take a Diploma in Agriculture.

17th Day, 31st January, 1917.

MR. T. H. MIDDLETON, C.B.

324. In the ten years preceding the establishment of the Board of Agriculture and Fisheries, Mr. Middleton said that a good deal of dissatisfaction had been expressed by agriculturists at the type of general education provided in country districts, and complaints were also common that, in this country, no facilities for technical education were provided by the State. When, therefore, the formation of a Board of Agriculture was under discussion, prominence was given to the educational functions of the new department, and when the Act creating the Board was passed, Section 2 (2) provided that the Board of Agriculture "may also undertake the inspection of, and reporting on, any schools which are not public elementary schools, and in which technical instruction, practical or scientific, is given in any matter connected with agriculture or forestry, and the aiding of any school which admits such inspection, and in the judgment of the Board is qualified to receive such aid, and the aiding of any system of lectures or instruction connected with agriculture or forestry, and the inspection of, and reporting on, any examinations in agriculture or forestry."

325. In the year 1888-89 the Privy Council had made certain grants of a tentative nature in aid of agricultural education, and when the Board began their work they continued making grants of the same type. As soon as possible they sought out and examined every institution or association engaged in fostering either the study or teaching of agriculture; they sent inspectors to confer with those directing the work, and on receiving favourable reports they made small grants in aid. The immediate policy was to direct and encourage all movements likely to benefit agriculture, and in the year 1890-91 some half-dozen types of organisations for instruction and experiment were aided in England and Wales alone.

326. The allocation of the Residue Grant (Whiskey Money) for technical education in 1890 provided County authorities with ample funds for the development of local educational work, and as a consequence the Board themselves adopted a different policy which aimed at building up collegiate institutions in different parts of the country. These institutions as they were established acted as centres for all the educational activities of a particular area. Within the Colleges instruction both of an elementary and advanced type was provided, while outside the College, teachers were employed in lecturing to farmers, conducting experiments, supervising dairy instruction and generally in promoting in all possible ways the spread of education among agriculturists. As indicating the effects of this change of policy on the grants made by the Board it may be noted that while in 1890-91 grants to Collegiate centres accounted for £550 only out of a total of £2,830, in 1906-6 grants to colleges represented £9,150 out of a total of £10,550.

327. The aim of the Board, Mr. Middleton stated, was to induce all Local Education Authorities in England and Wales to associate their work with one or other of the Colleges, of which there are now 12-10 in England and 2 in Wales. While they succeeded in securing some measure of co-operation in 44 administrative counties, 18 counties remained outside the "sphere" of any College, and either made their own arrangements or provided no form of agricultural education. Although the Board made no grants in aid of local classes, in those districts in which Collegiate centres existed their grants did, as a matter of fact, indirectly assist local work. This was recognised by many Local Education Authorities, and the Board were invited to inspect all their agricultural work and not only that carried on by members of a College staff. The result was that while no close or formal system of inspection was adopted such as would have been necessary if money grants were being made, the Board were able to keep in touch with all kinds of agricultural education and thus to exert an influence on local activities quite out of proportion to the expenditure incurred by them. At this stage a good deal of work was begun which could only be carried on successfully so long as those who first gave their services remained available. As time went on the young teachers of agriculture first appointed on low salaries began to ask for increased remuneration. To add to the difficulties of those responsible for College finances, as institutions developed the demands became more complex, and instead of one or two special agricultural teachers, it became necessary to appoint three or four. The Board's grants were not much increased, and after the passing of the Education Act of 1902 the finances of Local Authorities were sorely strained by the requirements of elementary and secondary education.

328. In 1906 a powerful movement was organised for the purpose of securing greater State aid for agricultural education. Lord Barnard brought the subject before the House of Lords, with the result that a Departmental Committee to enquire into the whole position was promised. This Committee was appointed, with Lord Ray as chairman, on March 20th, 1907. It met for the first time on April 30th, 1907. It examined over 100 witnesses, representing all interested in those forms of education which the Board of Agriculture had fostered, and reported on July 14th, 1908. The issue of this report marks the close of the second stage of the development of agricultural education in England and Wales. Mr. Middleton considered that any student of the evidence would admit that a notable advance took place between 1889, when the Board first aided agricultural education, and 1908, and that for the expenditure incurred by the Board (£142,238 in all) an ample return had been secured.

329. The third stage in the recent history of agricultural education related, Mr. Middleton said, to some complex questions which arose between the Board of Education and the Board of Agriculture and Fisheries. These difficulties originated with the passing of the Education Act, 1902. Section 2 (1) of this Act provided that the Local Education Authority "shall consider the educational needs of their area and take such steps as seem to them desirable, after consultation with the Board of Education, to supply, or aid the supply, of education other than elementary, and to promote the general re-orientation of all forms of education." Much of the

work which thus came within the purview of the Local Education Authorities was of a kind for which hitherto the Colleges had been held responsible, and overlapping between the work of Colleges and the Local Committees became possible. As a matter of fact, very little overlapping did occur, for the Higher Education Committees continued, as in former years, the Technical Instruction Committees had done, to co-operate with the Colleges. The objection to the dual system was of another kind. In many places very little work of any sort was being done, for the Colleges had not the funds to carry it on properly, and the Higher Education Committees were apt to be content with the meagre service rendered to them by the Colleges. Two ways of ending the situation were possible:—(1) The Colleges might have been given additional aid for the purpose of enabling them (as in Scotland) to provide and supervise all agricultural work; (2) the Local Education Authorities might be required to carry out more efficiently the provisions of the Act of 1902, and for this purpose should be further subsidised by the State. It seemed clear to Mr. Middleton, in view of the provisions of the Act, that, apart from any question of efficiency or economy, the second course was the desirable one, for the Act expressly required the Local Authorities to make provision for the needs of their respective areas. None the less, a somewhat difficult situation arose, for the ending of which a number of conferences between the two Boards were necessary.

330. The view of the Board of Education was that the Board of Agriculture had no *locus standi* with Local Education Authorities, and that they could therefore take no part in the supervision of their work; and further that, as it was desirable that all forms of State aided education should be under one Department, the higher institutions now aided by the Board of Agriculture should be transferred. On the other hand, the Board of Agriculture claimed that they were specially charged by Parliament with the duty of promoting agricultural education; that they had been engaged in this work for nearly twenty years, and that, as a matter of fact, the enquiry made by Lord Reay's Committee had shown that their direct interest in this work was very much greater than that of the Board of Education. They also pointed out that their immediate object as a Department of State was to develop agriculture, and that a close connection between themselves and the institutions responsible for higher education was essential for the satisfactory progress of their work, for through these institutions they were able to keep in touch with the agriculture of every district and to aid local development.

331. With regard to the County Education Authorities, the Board took the view that though responsible to the Board of Education for the preparation of schemes, they were free to consult any department of the State that could effectively aid them, and that in organising agricultural education it was most desirable that they should not be cut off from the benefit of such advice as the Board of Agriculture could offer. On the other hand, Mr. Middleton stated, it was admitted by the Board of Agriculture that as the Board of Education made large grants for other forms of education to Local Authorities, they were in the better position for coercing defaulters, so that if they had control of the grants for agricultural instruction they might be better able than the Board of Agriculture to force neglecting authorities into taking action.

332. It seemed to him obvious that in dealing with agricultural education the two Boards must regard the subject from a somewhat different standpoint. On the one hand, the Board of Education looked on it as a part of the whole subject of education, in the development of which they were directly interested; while on the other, the Board of Agriculture regarded agricultural education as a means of advancing the industry with which they were especially concerned. Clearly it was necessary that a compromise should be effected in respect of such work as might come within the sphere of Local Education Authorities. The view put forward on behalf of the Board of Agriculture was that the Board of Education should be responsible for all forms of instruction adapted for pupils of school age—i.e., up to 17 or thereabouts—such work as Nature Study for the elementary classes, courses on the principles of agriculture and gardening in evening schools, and lessons in chemistry, botany, mensuration and other subjects useful to young agriculturists in secondary and evening schools, while the Board of Agriculture would take responsibility for the kind of instruction required by young men who had already begun farming, such as lessons on the manuring and cropping of land, the feeding of cattle, and the marketing of produce. These subjects are of a kind on which the Board of Agriculture have special information; application is constantly made to them by the public for advice on such matters; it would be reasonable, it was argued, that Local Education Authorities should avail themselves of this advice, and that the State should employ the Board of Agriculture to supervise the practical teaching of agricultural subjects.

333. The Board of Education would not agree to this division, as they felt that they alone must be responsible for the educational work of Local Education Authorities. Finally the compromise contained in the Memorandum of Arrangements (*handed in by Mr. Middleton*) [Cd. 4886] was arrived at, which provided that while the Board of Agriculture retained Higher Agricultural Education and all forms of experimental work, the Board of Education should undertake responsibility for county instructors and for the winter agricultural schools, the creation of which was urged by Lord Reay's Committee. The general effect was to shut out the Board of Agriculture from the share which they asked for in the education of farmers (except of those of the class who attended or came under the influence of Universities or Agricultural Colleges), and to exclude altogether from their purview the education of smallholders, allotment holders and labourers, except in so far as they might be influenced by demonstrations and experiments. On the other hand, it left the Board free to develop higher forms of instruction and research, and they were able to satisfy the Treasury that no increased grant in respect of the work at the Colleges was desirable, and in the year 1910-11 grants of the total amount of £18,840 were made to 23 institutions. The rise of about £8,000 represented some

recognition by the Treasury of the useful work being done by the higher institutions, but it did not in any way indicate how greatly their possibilities of usefulness had increased.

334. The first real opportunity of agricultural education and research came, Mr. Middleton said, with the passing into law of the Development and Road Improvement Funds Act, 1909-1910. As soon as the Development Commissioners were appointed, steps were taken to bring to their notice the needs of the agriculturist. After several informal communications, a letter was addressed to the Treasury on the 26th August, 1910, asking for an advance of £50,000 per annum in aid of research and advisory work. The Board were informed that the Commissioners assented in principle to their proposals, and were asked to prepare a complete scheme for consideration. An enquiry was accordingly made as to the work and needs of all institutions in England and Wales, and on the information obtained a detailed scheme was submitted to the Commission on January 27th, 1911 (a copy was handed to). While general principles requiring careful study were under consideration, it was necessary to provide for the temporary needs of institutions which, like Rothamsted and the University of Cambridge, were in a position to utilise research funds to advantage at once. Institutions were therefore invited to submit proposals for such work, the schemes which were sent in were subjected to detailed examination by the Board's Advisory Committee on Agricultural Science, and those which were approved were submitted to the Commission.

335. The consideration of the Board's General Scheme occupied several months, and was the subject of correspondence and interviews with the Commissioners. After undergoing modifications it was finally approved by the Commissioners, and on August 22nd, 1911, almost exactly a year after an application for £50,000 had been sent in, the Board had the satisfaction of hearing from the Treasury that a sum of approximately £50,000 per annum had been granted for the purposes for which their original application had been made. The main features of the Scheme, as approved by the Treasury, were: (1) A grant which provided 36 scholarships worth £150 per annum, each tenable for three years, the best holders to form recruits for the Research Institute; (2) Grants to the total amount of £30,000 per annum provided for twelve institutions, with a view to strengthen existing departments or create new centres for the investigation of those branches of science which most closely affected agriculture; (3) A sum of £3,000 to be distributed in aid of researches not provided for under (2) on the recommendation of the Board's Advisory Committee on Agricultural Science; (4) A sum of £12,000 for developing advisory or consultative work for farmers, at twelve institutions to be associated with twelve distinct areas in England and Wales.

336. Mr. Middleton indicated briefly the main purpose of these Advisory Grants. Experience, he said, had shown that instruction of the ordinary type did not exercise so direct an influence on agriculture as might be expected. It was of great value in aiding young people and the less experienced, but as a rule it was too elementary to appeal to an experienced farmer. He met with difficulties in his work which could not be answered off-hand even by a well-trained scientific man. Investigation was necessary, and sometimes prolonged investigation might be both necessary and desirable. It had not been possible to give much time to solving the difficulties of individuals in the past, and the new effort aimed at creating consulting staffs at certain Universities or Colleges, whose business would be to investigate such difficulties as arose in practical agriculture, and especially to deal with the difficulties of the best farmers. Careful study and considerable expenditure on solving the difficulties of an individual might seem, Mr. Middleton said, to be out of place in a public institution, but it must be remembered that the "ailments" of a farm were not purely of interest to an individual. If a good farmer had a difficulty, and that difficulty was solved, he became more successful, and his neighbours saw and copied. The practice of agriculture was developed, Mr. Middleton said, chiefly by imitation. A skilful man might soon increase the prosperity of a parish, for though farmers might be slow to listen to oral instruction, they were quick to see that a change in practice enabled a neighbour to grow better crops. The principle which, he considered, should be adopted by the administrator intent on increasing the production of a community was that most attention should be given to the wants of those who had the reputation of being the most skilful farmers. These men were usually the most ready to learn, but they must be convinced that the advice offered to them was worth having. They had too often been disappointed in the past.

337. The Memorandum of Arrangements [Cd. 4886] proved in practice, Mr. Middleton said, to be very unsatisfactory to the Board. As pointed it was comparatively unobjectionable; but the Board of Education took the view that a document put in by them in the course of the negotiations between the two Boards (but not assented to by the Board of Agriculture) must be read into the printed arrangements. The effect of this claim, if it had been admitted, would have been to restrict the sphere of the Board of Agriculture narrowly to education of University grade—that is, to the inspecting and aiding of the long courses provided at the Colleges. Extension lectures, short courses, &c., were, it was claimed, essentially county work, and therefore should come under the supervision of the Board of Education. A further difficulty arose over the scheme for providing advisory work for farmers. It was held, by representatives of the Board of Education, that the advice provided by the Colleges must relate exclusively to the scientific questions of the type which could only be answered by a trained scientist. This would have precluded advice on many of the subjects on which farmers most often want information. The view was also taken that the farms to be attached to Institutions could only be used for administrative and teaching purposes, and that experimental work in association with the Colleges was not permissible. The discussions which arose over such points made progress very slow, and when Mr. Runciman came from the Board of Education to the Board of Agriculture he saw that it was impossible to continue the existing conditions. In consultation with

Mr. Pease, a fresh Memorandum of Arrangements (Cd. 6039) was drawn up, which transferred the supervision of county work as well as of work carried on by the Colleges to the Board of Agriculture. In practice this meant that all agricultural education, except that carried on in elementary and secondary schools, was to be supervised by the Board of Agriculture. Since this arrangement was made, Mr. Middleton said, there had been no difficulties of an administrative kind between the two Boards, and it was believed that no inconvenience had been caused to any of the Inspectors of either Department. He thought it should be noted, however, that these satisfactory results depended entirely upon a Memorandum of Arrangements made between two Ministers, and that at any time the arrangements might be upset by their successors. It was essential, he thought, that the position in future should be safeguarded, and that statutory authority should be given to the arrangements now in force.

338. At the time when the supervision of agricultural education was transferred to the Board of Agriculture, the Board of Education were discussing with the Development Commissioners a scheme for the provision of Farm Institutes. The Board carried on these negotiations, and as the policy of the Board and of the Commissioners was practically identical there was little difficulty in reaching a satisfactory arrangement. This arrangement, Mr. Middleton said, was stated in detail in the Regulations for Farm Institutes, printed as Appendix II. to the Board's Regulations for Agricultural Education.

339. The only subject which gave rise to considerable discussion between the Board and the Commission at this stage was the amount of the financial aid to be accorded to counties. The Development Commission originally proposed that a grant of 50 per cent. of the cost of new work should be allowed. It was argued by the Board that while this might be a generous grant to some counties which were spending practically no ratepayer's money on agricultural education, the position was very different in those cases in which a rate approaching 2d. in the pound for Higher Education was already being levied. The Development Commissioners admitted the force of this argument, and on their recommendation the Treasury, as a temporary measure, agreed to aid new expenditure on a sliding scale. The counties were classified in groups, and received grants varying from 75 per cent. as a maximum down to 50 per cent.

340. When the arrangements for the Farm Institute Scheme were well advanced, Mr. Runciman held a series of conferences with the Local Authorities in all parts of the country, except the north-west. (The Lancashire Local Authority refused to attend a conference at which it was proposed to meet representatives of the University of Manchester, the county of Cheshire and themselves.) The main purpose of these conferences was twofold:—(1) To explain the general character of the arrangements proposed; (2) To advocate combination between the counties themselves and between groups of counties and the College. Provisional groups of counties were arranged, and on the invitation of Mr. Runciman proposals were sent in for the election of certain representatives on Advisory Councils. The original intention was to make these Councils small in size, consisting of two or three representatives of the College Governors and two or three members from each of the County Education Authorities. Ultimately, however, it was decided to use the Advisory Councils for the purpose of working the Live Stock Scheme, and a number of prominent breeders of live stock were made members. From an educational point of view, Mr. Middleton considered this a mistake; the interests were separate, and it would have been better if the Live Stock Scheme had been run independently. The Advisory Councils were just beginning to get to work when the War broke out, and he thought it too soon to form any estimate of their permanent value. In certain districts, however, they had already accomplished a very useful purpose by getting adjacent counties to agree to a common policy. The main drawback to their success had been that, having no funds at their disposal, interest had been apt to flag. When these Advisory Councils were first discussed, the intention was to have provided them with funds, and to have made them responsible for the work of certain peripatetic lecturers, many of whom could be more usefully employed in a "province" than within a single county.

341. In outline, the arrangements for the administration of agricultural education had now been completed, but a serious financial difficulty remained. The terms of the Development Act precluded the Commissioners from aiding work in existence at the time when the Act became effective. They were, therefore, only able to assist new work. The consequence was that counties which had already spent considerable sums on agricultural education found themselves, in a sense, less liberally treated than those which had spent little or nothing; for counties which had incurred no higher education rate, or spent little of the Residue Grant upon agriculture, could easily increase their expenditure, and thereby earn grants varying from 50 to 60 per cent. of their outlay, whereas counties which had reached the limit (2d.) of the Higher Education Rate, and could not raise more money, were practically debarred from any substantial help. This view was strongly pressed upon Mr. Runciman at his conferences, and was subsequently taken up by Essex, Yorkshire and other counties among the most progressive in agricultural instruction. It was manifestly impossible, Mr. Middleton said, to secure the healthy development of the subject, in view of the discontent of those who had been the most active workers, and a full examination of the whole financial position of the Local Authorities was therefore undertaken.

342. It was resolved to approach the Treasury with the object of securing funds which would enable the Board to make grants in respect of work which could not be aided from the Development Fund. Mr. Middleton gave the following as an outline of the argument presented:—(1) It was pointed out that Local Education Authorities had been providing agricultural instruction for about 20 years, without system, with little State supervision and little State aid except the Residue Grant, which had been handed over unconditionally. Some counties were spending a good deal, both from the Residue Grant and from the rates; others were spending chiefly from the Residue Grant; others, again, were spending little or nothing on agricultural

education. (2) The expenditure bore no relation to the needs of agricultural education within the County. As a general rule, the industrial counties aided agriculture more liberally than the agricultural counties. In the illustration, cases were cited, most of the "pairs" being adjacent counties. Figures, without names, are reproduced:—

County.	Male Agricultural Population.	Expenditure on Agricultural Education.
A	40,000	£3,500
B	36,000	600
C	18,000	2,400
D	14,000	3
E	21,000	1,700
F	12,500	11
G	40,000	7,700
H	47,000	1,700

(3) Since 1902, funds for agricultural education had been increasingly difficult to secure, owing to the pressure of other forms of education on the Whiskey Money and the ratepayer. (4) The Board's policy was to establish a special Committee, usually a Sub-Committee of the Education Committee, in each county, and to secure to this Committee a definite income made up from (a) Rates, (b) Residue Grant, (c) The Board's vote. To secure economy in expenditure the counties were to be grouped into Provinces, and linked to central Colleges. It was intended that the arrangements should secure a common policy, an exchange of instruction and free interchange of services between the schools to be established within the Provinces. (5) The grants paid by the Board of Education to counties in the past were unequally distributed. Nearly the whole of these grants were given under a Regulation (Article 34) which only suited the conditions of certain counties. The result was that in 1910-11, 25 counties, spending £39,000 on agricultural education, received grants of £4,800, while 23 counties, spending £34,000, received grants of £700 only, and of the latter amount £386 was paid to a single county. (6) Not only were the grants unequal in amount, but the system of grant-aiding was most complicated. In 1912, at the time the work was transferred to the Board of Agriculture, agricultural instruction was aided in the following different ways:—(a) Block grants to Colleges, which, in effect, were frequently grants in aid of county expenditure. (b) The Residue Grant, which might be used to aid any form of Higher Education. Before 1902 it might also be used to reduce the rates; after 1902, although technically not available for the reduction of rates, in practice the Residue Grant saved the ratepayers of many counties from the necessity of raising a rate for Higher Education. It remained, therefore, in effect, a grant in relief of rates. (c) Block grants paid under Article 34 of the Technical Schools, &c. Regulations of the Board of Education. (d) Small grants paid under Article 32 of the same Regulations. (e) Further small grants paid under the same Regulations, in aid of certain schools. (f) The Farm Institute grants, about to be awarded, were to be paid on an entirely different principle, i.e., the partnership principle.

343. It was clearly necessary that means should be taken for simplifying the grants, and the Board proposed that, in future, all new grants should be either in the nature of block grants to institutions or partnership grants to Local Authorities. The "partnership" grant had not only been approved in principle by the Development Commission, but had been at work satisfactorily in Scotland and Ireland. There was, however, a difficulty in making it applicable to England. Because the Residue Grant had been handed over unconditionally to the County Councils. The principle of aid which the Board proposed was that two-thirds of the cost of agricultural education should come from the taxpayer, and one-third from the ratepayer. Since the Residue Grant was contributed by the taxpayer, and since its amount was not regulated by the State, it was not possible to give direct effect to this principle. While the Board had no power to redistribute the Residue Grant, they would be able, Mr. Middleton said, to give effect to the principle if means could be devised for distributing their own grants in such a way as to provide the amount by which the Residue Grant fell short of two-thirds of the net expenditure on agricultural education. A method of securing this object had been devised. As a preliminary to fixing their own grants, the Board proposed to distribute (on paper) the Residue Grant between counties, in such a way that each county should contribute to agricultural instruction the average amount contributed by all counties in proportion to the need for such instruction in the particular county, and its ability to pay. It was ascertained that the approximate expenditure from the Residue Grant on agricultural education in the three years 1909-12 was £24,500 for England and £1,600 for Wales. If the sum of £24,500 had been universally distributed over English counties it would have provided for an annual expenditure of 49s. per 100 males engaged in agriculture. The average need of each county for instruction might be estimated from the male population engaged in agriculture, and this figure was easily ascertained, but the average ability to pay raised a more difficult question, since the Residue Grant was not distributed on any basis that measured "ability." The usual basis for estimating ability, Mr. Middleton explained, was the proceeds of a uniform rate. The receipts of each county from the fixed Residue Grant were, therefore, compared with the receipts from a uniform rate, and in this way a figure was reached indicating the ability of each county to aid agricultural education. The grants under the "partnership" scheme could then be calculated in the following way:—First, the expenditure due by the county from the Residue Grant was set down; then, one-third of the net expenditure of the County was added, representing the ratepayers' contribution. The balance, if any, would show the amount due from the Board. It was estimated that to give effect to this method of aiding counties the maximum sum necessary would be about £17,000. After prolonged negotiations, Treasury

saction to the new scheme was obtained, and was embodied in the Regulations for 1915-16. Mr. Middleton pointed out that the two-thirds and one-third rate was the maximum, and applied generally to certain forms of education (see Class I. in the Regulations, 1916-17, page 9). For the forms of education, arranged under Class II., a variable rate was paid.

344. It should also be noted, Mr. Middleton said, that the new Regulations included the grants made under the Farm Institute Scheme from the Development Fund. The practice was to calculate how much was due to a county from the Development Fund, and to make up the difference from the special grant authorised by the Treasury. A few counties benefited largely by the new Regulations; most were no better off than before, but they were just on the border line, and as their work progressed they would benefit more and be able to recover up to two-thirds of their expenditure. About one-third of the total number of counties could not earn grants under the Regulations until their expenditure had been largely increased. By a special arrangement made with the Treasury, these counties received a block grant equivalent to the grants which they formerly earned under other Regulations. It was claimed, Mr. Middleton stated, that, as far as the expenditure of Local Authorities was concerned, the aid given by the State was now on a liberal scale. On the other hand, the funds available for the support of the Colleges were much too small to maintain institutions charged with the important functions they must fulfil. The next raid which the Board makes on the public purse in aid of agricultural education must, he considered, be on behalf of the Colleges.

345. Money, Mr. Middleton said, would be hard to get after the War, but he did not anticipate failure in securing more aid for agricultural education, for when the country had had time to consider its position it would, he thought, be agreed that one of the State's best investments in the past ten years had been that made in agricultural education. We were just ready, but no more than ready, when war broke out, and investigators, teachers of agriculture and County Organisers had served their country well. Had we been given a few years' respite, during which the new system of agricultural education would have had time to develop, pressing problems of food production would, he felt certain, have been less difficult than they are now.

346. In cross-examination, Mr. Middleton supplemented his statement with regard to Farm Institutes by pointing out the difficulty of establishing them in counties where the Local Authorities were opposed to it. In reply to a question as to whether, if the State made financial arrangements for a county, they could not be persuaded to accept an Institute, he said that a sense of unfairness would be created by such counties being given preferential treatment. So long as the Local Authorities were responsible for agricultural education, they must either be allowed to retain their share in the responsibility or be passed over altogether. The usual procedure was for the Board's Inspector to report when a certain county was prepared to establish an Institute, the Board then making arrangements to get it started. It was difficult, Mr. Middleton said, to decide the number of Institutes necessary to satisfy a particular area; a county boundary was not a sufficiently large one. When Lord Reay's Committee reported they indicated that an Institute was required in each county with the object of providing some centre at which the instructors for the county could have their demonstration farm, and to which the people could look when they wanted instruction. The scheme for Farm Institutes, drafted by the Board of Education for presentation to the Development Commission, contemplated rather large schools, a great deal of building and an expensive staff. It was subsequently transferred to the Board, who decided to strengthen the existing Institutes rather than rush into large building schemes. Newton Bigg Farm School, in Cumberland, for instance, where eight or ten boys were formerly trained each year, had been considerably enlarged, and about twenty pupils could now be accommodated. He thought that after the War the Board would probably test every area carefully, by means of the peripatetic teacher, before doing more than give the county a headquarters. As pupils at a Farm Institute he suggested lads of nineteen or twenty, who had done a good deal of farming and really wanted to learn. The peripatetic classes, he thought, should provide for lads of eighteen to twenty-four. Mr. Middleton was of opinion that there should be close co-operation between the Institute and the Agricultural College in a district. The nature of the relation between them depended, he said, on the particular conditions of the area and the Institute. There should be at least a desire on the part of the county to get all the help they can from the College, and the College must be willing to give the help. Asked whether he considered a University the proper place for the education of ordinary farmers, Mr. Middleton replied that he thought they were in some countries. Scotch farmers, for example, might very well get their higher education at the Universities.

347. With regard to the staffs of the Colleges and Research Institutes, Mr. Middleton felt that conditions must be improved if the best men were to be retained. Some slight improvement had been made in the scale of pay, but he was not yet satisfied. He thought it a very good suggestion that if his salary were raised the young teacher should be compelled to spend part of it on his own development. It was necessary, he considered, that anyone who was going to teach agriculture should have not less than five years' study, whereas at present he seldom had more than three. An agricultural teacher needed a fairly wide outlook over the agriculture of his country, and this could best be gained by experience in other districts besides his own, the conditions of which he already knew, and to which he would return with a more intelligent interest.

348. One of the chief difficulties in the development of Institutes was, Mr. Middleton said, that funds had been so inadequate. From the point of view of the Colleges themselves, he would favour supporting them by State funds; but, dealing as he was with the administration of agricultural education, he thought that, to some extent at any rate, Colleges should be dependent on the contributions of Local Authorities; without a financial tie it was difficult to

bring about effective co-operation between local agricultural education and the Colleges. He was of opinion that, in the higher forms of Farm Institute, State aid should form the larger share. On the whole, he agreed with the suggestion that there would be some advantage in having the whole system of agricultural education centralised in the Board of Agriculture as it is in Scotland, but it would involve the sweeping away of the Residue Grant and a reconstruction of the whole position.

349. Mr. Middleton said that Elementary School education did not come into his province, but he considered that some means should be taken to continue the instruction of boys and girls after they leave school. This, he thought, should be compulsory up to the age of seventeen or eighteen, but not later. He agreed that there was something to be said for insisting on a winter course of instruction in place of part of the summer course. The farmers would be more easily reconciled to further instruction for their sons if they were able to keep them on the farms during the busy summer months. Mr. Middleton considered that it was very difficult to reach the labourer directly, except through the instructor in the subject in which he was personally interested. The type of horticultural instruction provided, *e.g.*, in Northumberland, was, he said, very useful, while in districts where there was no objection to poultry-keeping by labourers, the poultry instructor would be most helpful. The labourer's surroundings should be made as congenial to him as possible; this would help to keep men on the land. He thought that demonstration plots might be very usefully extended. In the Elementary School the chief need was to change the outlook of the teacher, who frequently favoured an industrial rather than an agricultural career.

350. Questioned as to the education of landowners, Mr. Middleton said he thought that they should avail themselves of the courses now held at Oxford and Cambridge. A course in Economics would, he considered, be of more use to many young landowners than a scientific course. It would not be difficult to devise a suitable curriculum for him. He agreed that it was of great importance to get the landowner to understand that he must study estate management.

PROFESSOR R. H. BIFFEN, F.R.S.

Development of Agricultural Research.

351. Professor Biffen, of the School of Agriculture, Cambridge, gave, in reply to Lord Selborne, some general examples of the economic value of plant breeding.

352. One of the most important of these examples was, in his opinion, that provided by the sugar beet industry. The whole of this had been built up on a basis of plant breeding. It had reached a very high pitch of perfection, yet even now persistent research work had to be carried on to keep the yield of sugar up to the standard. Great attempts were now being made to improve the sugar cane in the West Indies, and the results were proving very satisfactory. With regard to the improvement of crops by selection, Professor Biffen said that whereas it was possible to go on selecting cereals indefinitely without effecting any actual improvement in them, that was not the case with sugar beet.

353. In Australia wheat growing had been greatly extended on account of the results which Farrer obtained in breeding wheats; in fact, Professor Biffen did not think it an exaggeration to say that Farrer's work had made the Australian wheat crop. Much the same result might be seen in the South African mealie crop. Again, fruits had been improved to such an extent that their wild prototypes were hardly known.

354. There was great difficulty, the witness said, in estimating the extent to which plant breeding might increase the output of various crops, owing to the fact that the subject was essentially a new one, and sufficient time had not elapsed to test it thoroughly. He knew of no place in England besides Cambridge where this work of plant breeding was being carried on so comprehensively. Garton's did a certain amount of breeding. In the case of wheat, Professor Biffen said that he was able, to a certain extent, to quote the results which had been obtained, and also to show the possibilities of improving the crop. They had obtained varieties which, for instance, had a stiffer straw, or a greater power of resisting disease, and had crossed them with the wheat already grown in this country. One of the resulting varieties (Little Joss) combined heavy yield with disease resistance, and the witness had found, on making a brief survey just before harvest-time last year, that more than three-quarters of the total crop in Cambridgeshire consisted of this variety. One difficulty which, however, was now practically solved, was to stiffen the straw of wheat, with the idea of obtaining a variety which would stand more intensive cultivation; unless this was done, it would be impossible to get the maximum yield from the wheat crop. English wheats, as compared with Canadian wheats, were, Professor Biffen considered, lacking in quality. When converted into flour, the Canadian grain made a whiter and much more attractive loaf. Varieties were known which could be grown in this country, and which would give flour comparable with Canadian wheats, but, unfortunately, these varieties would not crop satisfactorily here. By cross-breeding, however, one or two strains had been built up which were cropping heavily and which possessed the fine qualities of the Canadian grain. A few years ago the witness had put one of the earlier hybrid types on the market, and to a certain extent it was satisfactory. In some districts, he said, it was largely cultivated, and was still grown in a good many. He wished to emphasise his opinion that if the quality of the hybrid was definitely maintained for a number of years it would probably be maintained for all time. Other hybrid wheats, which had been on the

market now for twelve months, were giving cropping returns well in excess of those of ordinary English wheats. This, he said, by no means exhausted the possibilities of improving wheat. It was possible by breeding to obtain more disease-resisting varieties, and also an earlier maturing wheat which would be valuable for planting at an elevation of 7-800 feet. Asked how he managed to breed a wheat at Cambridge which would grow at an altitude of 700 feet, Professor Biffen said that that was not so difficult as it appeared, since, if it could be got to mature at a certain date in Cambridge, it would probably mature just a little later at a higher elevation. He considered it quite possible to combine the best quality with a high yield, and stated that last year's crop on the Experimental Farm averaged 48 bushels an acre, and one which he cut yielded 70 bushels an acre. That was a good quality wheat. He thought it might now be guaranteed that any hybrid type would be as stable as any of the old varieties. The chief difficulty in keeping stocks true was the mechanical one of getting one variety mixed with others. He had seen no signs of degeneration. With regard to the effect of climate upon the quality of new varieties, Professor Biffen said that it had always been assumed that the climate of England was inimical for the production of a strong wheat. This was not the case. But he admitted that climate did affect the time of ripening. For growing at high elevations, the variety of wheat selected was of fundamental importance. Varieties could be found which might be sown at the beginning of May, and harvested in the middle of July. Apart from the selection of a particular variety, ripening could only be hastened by the application of phosphatic manures, and this would make only a few days' difference. He thought that, as a general rule, the district would not make much difference. In a wet season, the witness stated, the grain would ripen later than in a dry one, but he agreed that it was possible that seed from an early district matured earlier because it had been allowed to ripen more fully. He had experimented with spring as well as autumn wheats, and had found that the grain will ripen best if sown before the middle of March.

355. With regard to barley, the problems were different from those encountered in the improvement of wheat, although the method of improvement was the same. In the course of the last few years, Professor Biffen said, two hybrid types had been introduced, and were now very generally grown. Both these varieties cropped as well as any other variety grown in the country, if not better. In several directions the crop was badly in need of improvement. The greatest need, he thought, was for an improvement in the quality of the straw, which was rarely stiff enough to stand well. During the last three or four years they had managed to find a few types amongst barleys from Abyssinia which had a considerably stiffer straw than any grown here. From these types he had been breeding a number of new barleys and it was now fairly clear that it would be possible to go on and stiffen the straw to a great extent. He considered that there was also need for improving different types of barley for feeding as distinct from malting purposes, for unfortunately very heavy crops were incompatible with good malting qualities. If the crop were forced on by nitrogenous manures, the malting quality would be injured. The witness thought, therefore, that it was necessary to have two distinct types, one for feeding and one for malting. He admitted that possibly, in getting a stiffer straw, there might be some loss in the feeding value of barley, but that had not yet been proved. Asked what excess of crop he would expect to get, Professor Biffen thought that putting the average yield of barley at somewhere about 33 bushels, 40 bushels might easily be obtained. It was, in fact, possible to get that now under reasonably good conditions. He did not think that these new varieties gradually lost their cropping qualities. At Cambridge, after ten seasons' growth, he had seen no sign of deterioration. He sometimes grew winter barley, of which enormous crops could be raised, and he had a long series of hybrids derived from it.

356. Professor Biffen said that there were several possibilities of improving the oat crop, but his research work with this crop had not reached the same stage as that with wheat and barley. He had, so far, simply laid the foundation for its improvement.

357. Several investigations had been carried out with the potato crop, and the witness thought that now most of the problems concerning the inheritance of its various characteristics had been solved sufficiently for practical purposes. He spoke most hopefully of the possibility of securing disease resistance in the potato crop, and thought the average loss of 20 per cent. a preventable one. One or two experiments had been started last year with the object of obtaining a heavy yield and good table quality, and also to try to breed a variety suitable for the production of alcohol. It would, however, possibly be 7-10 years before the results of the experiments would be seen. Professor Biffen did not know of any reason why the potato deteriorated to such an extent, unless it was that it became in some way more susceptible to disease. He thought it might be said that the potato "wears out." The more modern varieties, he pointed out, often seem to start life by being disease resisting, and then gradually year by year become more inclined to disease.

358. Research work was also being carried out, the witness said, with the various grasses used for the formation of permanent pasture. At present we were dependent for a large quantity of our grass seed on foreign countries, and he considered that one of the urgent needs of the future was to collect and cultivate the best types of grasses to grow in this country, instead of importing foreign material of relatively little value under our conditions.

359. With regard to other crops, Professor Biffen explained that although a certain amount of work was in progress, the ground had not yet been cleared, and it was at present impossible to say whether the problems under consideration were capable of solution or not.

360. The witness expressed the opinion that it would pay the nation as a whole if the work of plant-breeding could be very considerably extended. It was, however, a little difficult to see how the Plant Breeding Institute could be extended rapidly. The main difficulty was to find men of the right type to carry on this rather specialised kind of work. In Cambridge, Professor Biffen said, there was no difficulty in finding students who were very keen on investigating the

scientific side of the work; the difficulty was to find men who were really interested in their crops from the point of view of agriculture and in their technical utilisation. The few he had had, with these qualifications, the witness said, had been taken by the Colonies, and he could not retain them because he could not offer the high salaries which they could get abroad. He thought that as time went on the Plant Breeding Institute should be able to pay such men a sufficient salary to keep them there. As the Institute grew it would be necessary to devise some scheme for distributing the new crops. The present practice was merely to advertise them and sell them off to farmers in the country. At the time when stocks of seed had to be distributed they were working at very high pressure, and it was no uncommon thing to have to make an investigation of 100,000 separate plants in September and October, when most of the seed was being distributed. The witness thought there should be some agency for doing the distribution work, but he had not, so far, been able to work out the best method of setting up such an agency. In Canada there is an elaborate system by which farmers themselves select crops and grow pure stocks on their own account which are then inspected by officials of the Canadian Seed Growers' Organisation, priced, and then distributed, and certificates are granted stating that a farmer possesses such and such a pure stock of seed. Professor Biffen thought this system might be applied to work in this country with modifications, but was of opinion that the simplest plan would be to grow a considerable stock of each variety and distribute it amongst good farmers and also College Farms. The Institute would themselves retain the right to buy these crops back and then distribute the whole bulk of the seed, provided it had been kept pure. If, for instance, the Institute distributed 500 bushels of seed, they would expect to get a 15,000 bushel crop, which would be sufficient to supply at any rate the more go-ahead farmers in the country. He agreed that the seed would thus be tested and advertised in different districts, and he felt that they would make better prices if they kept it in their own hands. In the long run, he thought, the whole of the plant-breeding industry should be self-supporting. The funds of the Institute came, he said, entirely from the Development Fund, and he hoped that in time proposals would be made to the Development Commission for a larger grant. Asked whether he would like to see the work taken up in other centres in England, Professor Biffen expressed the opinion that on the whole it was better to centralise it. There was a fear, however, that they might breed a variety which was very suitable for Cambridge but might not suit the conditions elsewhere. Questioned as to whether he considered there was much need for extension of seed-testing stations, the witness replied that he thought all that was required in that direction was being done by the Agricultural Colleges. He did not think the farmers wanted it.

361. In reply to a question as to the scientific and technical education of future landowners, Professor Biffen stated that in the three years previous to the War there were a considerable number of sons of landowners reading agriculture in Cambridge. Most of these men, he said, came up with the idea of taking their ordinary B.A. degree with agriculture as one subject. There were two general lines of study open to them. After passing their previous examination, they might either sit for the preliminary science examination and then read agriculture, or they might take a special examination first and then read agriculture. They were usually advised to choose either law or political economy in the first place, and that course was very generally adopted. The two courses filled up three years. The following subjects were compulsory in the agricultural special examination: chemistry and physics, botany and zoology, and the principles and history of agriculture. Forestry and geology could be taken as optional subjects. Asked whether he did not find it a drawback to have a more elaborate Degree Course than the Diploma Course, Professor Biffen explained that the latter was designed more for specialists. He thought a general knowledge was probably of more use in fitting a landowner for his future work than the exclusive study of law or economics or agriculture. The Diploma course was taken by men who already held their B.A. Degree. The courses had, the witness said, proved very popular. The subjects were taught not merely from a theoretical point of view; in all cases lectures were followed by practical work in the laboratory or on experimental farms. The men took the courses very much in earnest, and many of them specialised and became research students. In 1911-12 the average number attending was 70, in 1912-13 it was 73, and in 1913-14 it dropped to 60. In the three years the average number of landowners attending was 55. The school had been open, but on a very small scale, for about 20 years. It had developed rapidly during the last six years. The courses of instruction had grown up gradually, and, the witness thought, served their purpose very well, though he would like to see them extended and estate management included as one of the subjects.

16th Day, 1st February, 1917.

MR. J. L. GREEN.

362. Mr. Green, who has for 29 years held the post of Secretary to the Rural League (of which the Right Honble. Jesse Collings, M.P., is President), and who is the author of "Village Industries" and other works on rural subjects, stated that the League were of opinion that smallholdings provided the only adequate ladder by which the great majority of rural labourers could rise in life and to the national advantage. The agricultural labourer in at present the lowest paid of all wage earners, and the outlook and surroundings of his life make him largely a tied man and an object of pity.

363. Mr. Green declared that smallholdings produced more food per acre than large farms, as judged by the test of experience. In support of this, he stated the number of cattle, sheep, and pigs per square mile of territory in Great Britain, Germany, Denmark, Belgium, and France; the figures showing, he said, as regards cattle and pigs, that Great Britain was a long way behind the other countries, and that, in the case of sheep, Great Britain stood pre-eminent. Mr. Green quoted the stock per 100 acres kept on different-sized holdings in Great Britain, as indicated by the Agricultural Returns of 1895, since which date, he said, no similar comparative figures had been published. From these British figures, he pointed out that it was only in the case of sheep that the large holdings carried the greatest number of animals. He also quoted the figures of the Swiss Peasants' Secretariat, which, he declared, were the only scientific figures available as to the influence of the size of farms on their gross yields. These figures, which related to 2,788 accounts, were kept, according to the published report of them, "on a uniform system, and were continually verified so as to obtain complete accuracy." The following conclusions, based on these figures, were arrived at by those who conducted the enquiry:—(1) The gross returns per acre increase in proportion as the size of the farms diminishes; and this in Switzerland is "regarded as scientifically established." (2) Small farms are relatively better supplied with cattle. (3) The average gross return per acre was found to be (a) £14 2s. 6d. on farms of 7-12 acres in extent; (b) £12 11s. 10d. on farms of 12-24 acres; (c) £10 17s. 6d. on farms of 24-37 acres; (d) £10 8s. 6d. on farms of 37-74 acres; and (e) 28 7s. 11d. on farms of above 74 acres. (4) The farms gave "similar conclusions, no matter what the system of farming, i.e., whether (a) purely stock farms, (b) farms cultivated on a clover basis, (c) stock farms with cultivation, (d) Alpine farms, and (e) farms in the high valleys." Mr. Green said that the authors claimed that the Swiss figures showed that in Switzerland, as in Germany, the increase in the size of the farms reduces per acre the gross return.

364. Mr. Green agreed with the statement in the Board of Agriculture's Report for 1909 on the working of the Small Holdings Act, that the establishment of smallholdings "involves the application of more capital and more labour than is the case with large occupations, and that it will result in more intensive cultivation and greater productiveness."

365. Mr. Green also stated that Captain Beville Stanier, M.P., D.L., Chairman of the Executive Committee of the Rural League (now Sir Beville Stanier, Bart.), had over a long course of years, encouraged smallholdings on his estate, and had declared to him that "There is no doubt that since the big farms have been cut up into small ones and smallholdings on his (Captain Stanier's) property, the produce of the estate has increased. The local auctioneer, the wholesale poultry and egg buyer, and the railway company all told him (Captain Stanier) that is so." Much the same opinion was expressed by the late Lord Wantage, who said: "A man cultivating a smallholding will produce twice as much per acre as a neighbouring farmer who is cultivating a large area."

366. Mr. Green had been in Germany about eighteen months before the War, and had been over several farms there, especially in the Eastern part of the Empire. Comparing the stock on a holding of 27 acres in one district with a farm adjoining it of 130 acres, the latter should have had 40 head of cattle instead of 14; 20 head of pigs instead of 6; 200 to 250 head of poultry instead of 120, etc. He found similar results on other German farms.

367. At Catshill, in Worcestershire, where a farm of nearly 150 acres had been split up over 20 years ago for small holdings' purposes on the occupying ownership principle, there were never more than five or six people employed on the farm (and usually less) before its conversion into small holdings, whereas now the number was nearer 100 (including the families of the occupants).

368. Mr. Green urged that small holdings retained more labour on the land per acre than large farms. In support of this, he cited evidence he had obtained from Winterslow, Burwell, Catshill (above alluded to), and other parts of the country. For instance, at Winterslow 156 acres formerly employed 3 men; the land was sold to 49 holders, the purchase-money being spread over 15 years. Houses for 33 smallholders had been erected, and the village was the only one in the neighbourhood which at the last Census showed an increase in the population. At Burwell 50 new cottages had been erected in the village since certain of the Crown lands in that parish had been split up into smallholdings. At Batherton, on 415 acres, there was now a population of 71 people as against 12, when the same land was not held by smallholders. At Noston, on 117 acres, the figures were 16 and 4 respectively. At Haslington, on 725 acres, there were 131 and 45 respectively; and so on in very many other parts of the country.

369. Dealing with certain classes or types of smallholdings, Mr. Green gave numerous instances. He wished to state that it was not desirable, in his opinion, to fix upon any particular type of holding, as the holdings, he thought, must be governed to a very large extent by circumstances, such as the nature of the land, the local markets, and the wishes and abilities of the cultivators themselves. The following were types of holdings from Cheshire:—(1) A *dairy holding* consisting of 48 acres of permanent pasture. The tenant sells about 4 tons of cheese in the season, and in the winter 20 lb. of butter per week, whilst he regards 20 to 25 acres as the lowest amount of land in his district on which a small family could be kept. (2) A *mixed holding* of 40 acres. The man keeps 4 horses, 9 cows, 6 heifers, 1 bull, 9 calves, 6 store pigs, and 350 poultry, and sells about 30 lb. of butter per week. He says that smallholdings produce more per acre than large farms. (3) A *market-garden holding* of 13 acres. The holder grows 3 acres of strawberries, 2 of potatoes, 2 of small fruit, and has about 4½ acres of mixed market-garden crops, such as cabbages, carrots, turnips, etc. He has one pony, one breeding sow, and 30 or 40 fowls, and sells all his crops except hay, which is used for feeding the pony. Further, on numerous mixed farms of about 20 to 40 acres in Lincolnshire, of which he gave particulars, Mr. Green said the men make a complete living from the holdings without any extraneous work. Again, the occupying owner of a mixed holding of 47½ acres in Wiltshire who had been

on the land five years, and was now "in a good position," declared that the smallest area of land in his county on which a man could keep a family was 50 acres, and that this area would employ 2 horses. The smallholders of the locality helped each other in the threshing, etc. Another man in the same county considered 40 acres the minimum for a dairy holding, and 80 for an arable holding. Mr. Green said that dairy holdings and market gardening would probably be found the most suitable types of holding; but that the mixed holding ought not to be excluded, inasmuch as on the above evidence, and on much further evidence in his possession, it had been proved to be a success.

370. Concerning the quality of the consumable dairy produce of well-cultivated smallholdings, Mr. Green said it was not inferior, and it was often superior, to that of the larger holdings; and, as evidence of this statement, he pointed out that at a recent show of the British Dairy Farmers' Association, held in London, smallholders from a dairying county exhibited dairy produce which took some of the highest prizes. In the open classes for butter-making at that show, smallholders won three first prizes and one second prize in the face of very strong competition. In Cheshire, too, at the annual shows, separate classes for smallholders are usually provided, and excellent exhibits are shown, which, a local and prominent agriculturist has declared to Mr. Green, "compare very favourably in quality with the produce from the larger dairies." In connection with milk selling in that county, some of the smallest dairies occupy the first place on the market, because of the excellent way the milk is managed, this being due, it was urged, to the personal attention which is usually common on smallholdings. Mr. Green said he had found in Denmark that in the early 'eighties what was known as the "smallholders' butter" was regarded as being of somewhat inferior quality, fetching 30 per cent. less than the first-class butter made on the larger farms; but that in less than 20 years later, after the organisation of agriculture had become well-known and established, the butter of the smallholdings took more medals and prizes than that of the larger dairies, whilst the so-called "first-class" butter of the larger dairies had, as such, ceased to exist.

371. Mr. Green also urged that the smallholder class forms a very valuable recruiting-ground for labour for the larger farmers; that smallholders are everywhere a stable element in the State, particularly accustomed to thinking out things well before adopting them (any loss or error being much more serious to them than to the larger or capitalist farmers); and that as a class they are saving, temperate, industrious, and loyal.

372. Referring to the difficulties in connection with the erection of the buildings required for smallholdings, Mr. Green considered that too much was often made of such difficulties, and that too great an expense was commonly incurred. He felt that if, when a man became a smallholder, he could have some real voice in selecting the requisite buildings, he would put them up, or see that they were put up, much more economically and with much more satisfaction than if they were put up by the County Council or by the ordinary landowner. He mentioned a visit he had paid to the estate in Lincolnshire of the late Alderman Sharpe, of Skefod, and of going over one of the holdings—17 acres of arable land—where the total cost of the small buildings came to £35 14s. 2d., the buildings being suitable for at least 25 acres. He gave the details of the expenditure. The holding contained a covered stock-yard, a covered barn or store-room, an open stock-yard, a covered pigsty, a covered calf-house, and a covered cow-house. The roof was galvanised, and the total exterior measurement was 38 by 30 feet. The smallholder was formerly a labourer, and when asked if the buildings suited him, replied without hesitation: "Yes, sir; quite sufficient for all purposes." No doubt, Mr. Green said, building materials after the War will be more expensive; but he saw no reason why the high expense should be incurred which he felt was usual in a matter of this sort.

373. On the question of whether smallholdings should be started on the home "colonisation" plan or as individual or independent holdings, Mr. Green said it seemed to him that no really definite or hard-and-fast line should be drawn, as both systems, in his opinion, had their merits, and one system could very well be worked in with another. For instance, if a colony were started in one district, with the benefits of a co-operative system, there seemed no reason why individual holders not actually in the colony scheme should not attach themselves to the co-operative part of it. There was a very useful field for smallholders in the matter of co-operation; whether for the purpose of the sale of their produce, for the purpose of the purchase of their implements, fertilisers, feeding stuffs, and manures, or for the purpose of credit, insurance against loss of live stock, etc. Co-operative dairy factories would be particularly useful wherever there is a reasonable number of dairying holdings; but Mr. Green strongly suggested that the milk should be fetched from the farms instead of the smallholders having to take it once or twice a day to the factories. Dairy factories ought not to be under the control in any way of those who buy the milk from the producers, but they should be under the control of the producers themselves, as, if not, the milk buyers would sooner or later control the price of the smallholders' product or products.

374. Other necessary adjuncts for the really successful and wide establishment of a smallholder class were, Mr. Green urged:—(a) a better system of agricultural education in the village elementary schools, and (b) the establishment of rural credit banks. The President of the Rural League had a Bill on the former subject before Parliament; whilst Major Hamersley, M.P., a member of the Executive Committee of the Rural League, had a Bill before Parliament dealing with the establishment of rural credit banks.

375. Mr. Green next dealt with the question of whether more production could be expected from owners than from tenants of small holdings; and he gave it as his very decided opinion that owners would produce the larger amount of food, and he produced evidence to support his views. After stating that the ownership system is common in every country of the world except in Great Britain, and that a very much larger quantity of food had been grown in Ireland since

the State, by its financial credit, had promoted cultivating ownerships in that county, he added that in the course of 30 years close contact with the rural population of England, he had seldom met a smallholder or a labourer who said he would—or would be likely to—do as much in the way of food production as a tenant as he would do if he were an owner. He said that the reason more men have not become owners under the existing legislation must be obvious to those who had followed the subject of small holdings with care, and who knew at all intimately the wants and ambitions of the population for whom the smallholdings legislation was passed. The Smallholdings Acts, he said, were ostensibly for the labourers. The labourers, however, a landless proletariat, are practically a penniless class who have been deprived of their former footing on the land as peasants mainly by legislation of, to say the least, a mistaken kind. In these circumstances, he said, to expect, as existing legislation does, that they should be able to put down a large part of the purchase money before acquiring a holding is extremely ironical and unjust. He declared that if the labourers were offered the facilities contemplated by Mr. Jesse Colliage's Purchase of Land Bill (to which reference is made later), there could be no doubt whatever that applications for smallholdings would come in from labourers from nearly all parts of the country to become owners of land for cultivating purposes; and he added that this was the testimony he had received over and over again from the Rural League's village agents of the working-man class, of which testimonies the League has something like 3,000. Mr. Green said the Rural League was not against a holder being a tenant, if he so desired; and that all the League asked for was (1) that the State should give would-be small holders the option of saying whether they wished to become tenants or owners, together with (2) the opportunity, in the latter case, of becoming owners on terms not less generous than those which have been offered to cultivators both in Ireland and in other countries of the world.

376. Mr. Green next dealt fully with the Purchase of Land Bill, introduced into Parliament by the President of the Rural League, and of which Bill the Committee had copies. The Bill, he explained, seeks to establish occupying ownership both among smallholders and amongst the existing ordinary or larger farmers. Under it, it would be possible for the State to advance the whole of the purchase money to a tenant or to a would-be holder, to enable him to buy his land; and the money would be repayable in easy annual instalments.

377. In advancing reasons for occupying ownerships, Mr. Green said the policy was primarily proposed in the interests of the State, and secondarily in the interests of the occupiers. It does away, he said, with the antagonism which from time to time—and in many cases almost permanently—exists between tenant and landowner. Moreover, the production of an occupying owner is greater than that of a tenant, as a rule; and he instanced, on this point, the report voluntarily drawn up by a party of British farmers who toured through very many of the agricultural districts of Ireland about five years ago, and who declared that the Purchase of Land Bill "would tend to increase the prosperity of agriculture," and that it "is a measure of usefulness and importance, unlimited from the agricultural and still more from the national point of view." The value of land, he said, when owned by an occupier, invariably increased, and often very rapidly; so that the taxable andutable value also becomes increased, to the great advantage of both the imperial and local exchequers—an experience, he added, common to wherever occupying ownership exists.

378. As to the occupier, Mr. Green stated that the policy of occupying ownership is in his best interest because, in the first place, being no longer dependent on the kindness (where it exists) of his landlord, his real ability or grit is necessarily developed by his own unaided exertions; because he is no longer subject to the petty and sometimes irksome conditions of either landlord or agent—a feature which is especially objectionable where the owner is an impersonal body, such as a County Council or a Government Department; because the expenses of the agent and his staff are no longer chargeable to the estate account, and, therefore, on the rents—the occupier having all the profits arising from his ability as a cultivator; because no tenure is more secure than, or as secure as, actual ownership, whilst all attempts by other means than ownership had failed to supply either security of tenure or to get for an occupier the real value of his improvements, &c.; because all his capital under the Purchase of Land Bill is available to a purchaser for working his farm, and none of it, unless he wishes, is required to be put down for the initial purchase of his land, whilst the purchase money is paid off by annual instalments which, as a rule, come to less than the existing rent; because, if an occupying owner leaves, he is better off than if he had remained a tenant, as he gets the full market value of his improved land and of his unexhausted improvements, and no sense of grievance remains, which last is so often the case under tenancies; because, when an occupying owner dies and his possessions may have to be realised and divided, the family are no worse off than if the occupier had been a tenant but, on the contrary, are better off, as, apart from the fact that an occupying owner is, as a rule, a more thrifty man, he would not at death leave merely as much actual cash as a tenant, but, from the fact that the land of an occupying owner nearly always improves in value, the family would be able to realise (if realisation was necessary) the increased sum which may be expected from such improved land.

379. Dealing with alleged objections to ownership, and with special reference to those in the report of the Departmental Committee (paragraphs 41 to 43, Cd. 8182—1916), of which Sir Harry Verney, Bt., M.P., was chairman, Mr. Green went into considerable detail, and added that in the League's opinion they were unfounded. He stated, for instance, that the League had sent a representative to report on the smallholdings at Catskill, on which holdings one of the Small Holdings Commissioners had reported unfavourably to the Committee so far as concerns the system of occupying ownership. The representative had found evidence on nearly every holding of very successful farming by these owners; whilst in only four cases was the cultivation in any way indifferent. In these four cases the cause was partly due to the War, and partly to the mistake of putting the wrong type of man on the holdings—a result for which

the system, as such, could not be held responsible. Moreover, after several days' careful local inquiry, he had found nothing to bear out the Commissioners' general adverse statements; but much to disprove them. For example, it was made a complaint by the Commissioner that a number of small holdings had "changed hands" since their establishment some 20 years ago. The Rural League found that in the case of eleven out of the thirteen holdings which had changed hands, the reason was due to the death of the occupiers. The successor, as a rule, was a member of the deceased's family. Moreover, it was found that there was not a larger farm than any of those of the freeholders in the whole neighbourhood that had not also changed hands (some several times) since the small freehold holdings came into existence.

380. Mr. Green then stated that there was a great desire throughout the country for occupying ownership; and he produced as evidence of this a report signed by the farmers (above referred to) who toured Ireland, in which they asked for legislative facilities to be given for the passing of the Purchase of Land Bill into law without delay. He also produced a list of 35 Chambers of Agriculture and Farmers' Clubs which had passed resolutions in favour of the Bill. One of these clubs has eight branches, another 26 branches, and a third 30 branches. Moreover, the Central Chamber of Agriculture, the Nation Farmers' Union, and the Scottish Chamber of Agriculture had each passed resolutions in favour of the principle of the measure. The Departmental Committee appointed in March, 1911, to inquire into the position of Tenant Farmers on the Break-up of Estates, also reported in favour of occupying ownership; and the report, Mr. Green said, had it been based more largely on the evidence, which he himself had analysed, would have been still more strongly in favour of the principle of the Bill under notice.

381. Mr. Green gave some examples showing how the Purchase of Land Bill would, he claimed, favour occupying owners. For instance, in Cornwall 241 acres were sold for £1,350, the rent being £80. Under the Purchase of Land Bill the occupier would have paid £54 annually for a period of years, after which he would be the absolute owner of the land, subject to its being kept for agricultural purposes. In Gloucestershire, 115 acres were sold for £5,110, the rent being £246. Under the Bill, the occupier would have paid £204. In Norfolk, 179 acres were sold for £3,500, the rent being £204. Under the Bill the occupier would have paid £140. In Northants, 147 acres were sold for £4,000, the rent being £210. Under the Bill the occupier would have paid £160. In Somerset, 63 acres were sold for £3,200, the rent being £195. Under the Bill the occupier would have paid £102. A great many other examples from some 20 counties were quoted by Mr. Green. In each case, he stated, even when 15 to 20 per cent. is added to the annual instalments, for repairs and insurance, the said instalments were less and often very considerably less—than the existing rents; whilst those rents themselves were very much lower than might reasonably have been charged.

382. With regard to how a scheme of land purchase could be financed, Mr. Green said that under the Irish system the National Debt Commissioners provided the money, who in turn took it from the Savings Bank Deposits. The Commissioners, according to Sir George Murray, invested the Savings Bank Deposits in Government 2½ or 3 per cent. Stock. The stock was issued in return for the Savings Bank Deposits. A sum of about 150 millions sterling had been advanced or guaranteed by the State already in connection with Irish land purchase. As regards Great Britain, however, Mr. Green said that probably no really large annual sum would be required, as the operation of the policy would be more gradual than in the case of Ireland, though he hoped that in a few more years it would gather increased force. In 1910 the sale of agricultural land in England and Wales amounted to 1½ million sterling in value. In 1911 it came to a little more than 2 million sterling. If it were thought well, he suggested that the capital expenditure for land purchase might be limited, in the first instance, to 25 or 50 millions in annual sums of (say) 2 million pounds. The Post Office Savings Bank, he added, in normal times increased its deposits up to some 5 millions a year, and the National Debt Commissioners and Public Works Loan Commissioners are constantly receiving monies which, of course, they must re-invest somewhere, and which might just as well—perhaps better—be invested in land as in anything else, for the land could never run away. The State, Mr. Green said, had lent local bodies with ease during the last four or five years after the passing of the Small Holdings Act some 4 millions sterling for the purchase and equipment of holdings under that Statute. He suggested, however, that there were alternative methods by which a policy of land purchase might be carried out. For example, the transaction might be a cash one; or it might be partly in cash and partly in a Special Land Stock; or it might be entirely by Land Stock. The Land Stock in each case would be guaranteed by the State, both as to interest and repayment of capital, the latter at a certain date (say) 68½ years; and the Stock should, and would, be a readily saleable security on the market. Under existing circumstances, he suggested that the second or third alternative above mentioned would very well meet the situation; the interest to the holder of the Land Stock being (say) 3½ per cent., although the occupying owner would pay an extra half per cent. to the State for sinking fund purposes. He thought, after careful consideration, a negotiable 3½ per cent. Land Stock would be sufficiently popular after the War. If, he added, 2 million or 5 million worth of each Stock were floated annually at 3½ per cent., it would only mean a guarantee by the State for interest of £70,000 or £175,000, the occupying owners paying £80,000 or £200,000 respectively so as to include the sinking fund. There were, he claimed, practically no risks to the State, as every annual instalment paid by an occupying owner would reduce the charge on his holding; whilst, for the reasons previously given, the security (i.e., the holding) in 99 cases out of 100 would be an improving instead of a depreciating security. The mortgage, and one which, unlike all others, could never be called in so long as he cultivated his land and paid the annual charge on it for the agreed-on period. The financial question, Mr. Green urged, looked at squarely, presented no real barrier to a national system of land purchase. He stated that it was in the interest of the cultivator that his period of repayment should be a

long rather than a short one. He would be, to all intents and purposes, absolute owner from the start; and the more lengthy the period for the repayment of the advance to him, the less would be the annual payment for sinking fund purposes. The exact period, however, might vary well in each case be a matter of agreement between the cultivator and the Board of Agriculture or the Treasury.

383. Mr. Green next referred to the kind, possibilities, and methods of developing village industries, and stated that since the outbreak of the War the Rural League had been engaged in organising such industries and selling the products thereof. He said that suitable industries were the manufacture of fancy leather goods (similar to those formerly received from abroad, and particularly from enemy countries), baskets, and toys (both wooden and stuffed). As to those who might properly and profitably engage in these industries, he specially mentioned rural disabled soldiers and sailors, the younger members of labourers' families remaining at home (both girls and boys), and such of the wives of the labourers as may have time for the work, particularly those whose families are grown up, and also widows and others in more or less distressed circumstances. The industries, he suggested, may be domestic or carried on in little inexpensive workrooms, and the workers might give either whole or part time according to circumstances. The general objects are to aid the family income (or even to supply it in some cases), to assist to retain in the country a more numerous population in close connection with the land, and to afford employment especially in the autumn and winter months when work on the land is largely at a standstill.

384. As to how to start village industries, he mentioned the Rural League's efforts in this connection. He said there should be, first of all, a Central Organisation (with possibly county-town centres) for:—(a) the purchase of raw materials and tools; (b) the provision of designs and models; (c) the obtaining of orders from wholesale and retail traders; (d) the reception, examination, packing and despatch of all goods made by the branches or workers to the order of the Central Organisation; (e) the collection of accounts due from the wholesale or retail traders; (f) the payment of the accounts for goods made to the order of the Central Organisation; (g) the provision of advice and information about the fixing of prices, etc., and instruction by means of leaflets or orally, and (h) the looking after of the general interest of the movement. Then as to local or village effort, he stated that in any given village there should, first of all, be some person who can write letters and keep the necessary simple accounts. After an industry is decided upon, one of the more intelligent women or girls of the village should be supplied with a model or models, and also with the necessary raw materials and tools; which tools, apart from an ordinary domestic sewing-machine (costing about £5 5s. 0d.) are quite inexpensive. His own tools, when he tried fancy leather work, cost not more than about 7s. 6d.—apart from the machine in question. When this worker is able to make an article equal to the model, either with or without instruction, it should be sent to the Central Organisation for criticism or approval and return. It may, in the Rural League's experience, be assumed that the first or the second specimen of any given model submitted to the Central Organisation will be of a marketable character; and the League's practice has invariably been thereupon to give the villager or branch an order for a dozen, a score, or a gross of it. This has promptly awakened local interest and enthusiasm, and many samples and other models have in due course followed, with subsequent orders from the Central Office. So the local business goes on, and other workers naturally come into the movement. Being now able to make sundry articles, the next thing, he urged, for the village to do is to depute someone to do the packing and despatch of the articles to the Central Office, which packing should be very neatly and securely done; and at the start such work could very well be added to that to be done once a week or fortnight by the individual who does the correspondence. It is—in connection with the League—at present done by a county woman, her daughter, or a friend in each case. A motto for every local branch or village engaged in the work should be:—"Always be neat in workmanship and on the alert how to improve on existing productions"; as no business can progress by standing still or by merely turning out existing patterns. Mr. Green stated that the Rural League's work has been (a) instructional, (b) that of organisation, (c) that of getting orders for goods, and (d) paying the branches and workers regularly every month for all orders executed. As indicative of the success of the movement, and the degree to which it adds to the enjoyment and pecuniary advantage of the village workers, shopkeepers, etc., Mr. Green stated that the following figures represented but a few of the individual amounts paid by the League to its branches and workers for orders executed by them during the past year (1916):—(a) £167; (b) £152; (c) £89; (d) £80; (e) £70; (f) £55; (g) £51; (h) £51, and very numerous other more or less similar sums. He stated, however, that the branches and workers not only realised these sums in respect of orders sent to them by the League, but probably in every case a much larger amount in respect of orders which the branches and workers received direct from wholesale and retail firms. It is not known in each case what these direct sales amounted to; but in one instance which came to the League's notice the branch sold goods to the value of £426 14s. 4d. during the year, or more than double the value of the orders obtained for it by the Rural League. Again, whereas for the twelve months ended December, 1915, the sum of £334 16s. 6d. was received by the League from traders for goods sold to them by the League, the amount so received by the League for the twelve months ended December, 1916, was £1,924 2s. 9d., or a total for the two years of £2,758 19s. 3d., a sum which would be doubled if all the direct sales alluded to could have been ascertained. Mr. Green was of opinion that even greater success would have accrued to the work of the League in connection with village industries had not the League's efforts been diverted on three separate occasions, at the request of the Government, in order to undertake recruiting for the new Armies, recruiting for the Derby Group Scheme, and work for the War Savings Committees, whilst, at the time of his

giving evidence, the League was assisting the Government in bringing about a greater production of home food. On behalf of the Rural League, he suggested that the movement projected and started by the League for the encouragement and establishment of village industries, successful as it had been so far, needed for its adequate extension a backing of a financial and organising kind from the State, as in other countries; and that it might very well work in with any future scheme or schemes for increasing the population of our rural districts, whilst it could also be linked up with the smallholdings' movement as a Small Holdings and Village Industries system. Village industries, he stated, had proved of enormous importance in eusey countries, whose trade in them the Rural League (not for its own benefit) is assisting to capture and to put upon a commercial (not charitable) basis on behalf of our own village people. The League, indeed, would be very willing to give the benefit of its experience to any Department which it may be desirous at any time to utilise or to create with that object in view.

385. In conclusion, Mr. Green referred generally to the reconstruction of the village and village community. He said every villager should have held out to him the opportunity of a career. On this point he thought, first of all, good wages and allotments were necessary, and then smallholdings should be available, accompanied (for the children) with suitable agricultural education in the village elementary schools; together with credit banks, co-operation, and village industries. Every villager, as far as may be, should, he thought, have the opportunity of greater social amenities, partly because of their social value to the individual, and partly on national grounds, *e.g.*, to act as a check to excessive migration to the towns. As to these social amenities, he said, in his opinion, better housing came first, so that a man can visit, and be visited, and live decently and in comfort. He would have also a parish or village hall, or library, in which meetings, and lantern and other lectures could be held, the newspapers, magazines, and books read, and other reasonable recreation obtained. He suggested there should be a parish field for cricket, football, &c., and for the village feast or other outdoor festivals. He thought, too, that it was most desirable to encourage the decentralisation of urban industries; by which he explained that he meant encouraging urban manufacturers to locate at least branches of their business in rural areas. This would add to the valuable value of land both in the villages and counties, and help to do away with some of the inequalities and anomalies which arise when industry is inordinately congregated in large urban centres. It would enable both urban and rural people the better to understand each other's difficulties, &c., and it would assist to provide better and more stable markets for the rural cultivators. He regarded this devolution of industry as a better system than that of building brand new "garden cities" in any given rural area; and it was, he thought, a much more natural method of achieving the same social and economic results, whilst spreading those results over a greater area. He would like also to see a wide expansion of the light railway and tramway system; both on social and economic grounds. Such a system would be feeders and of great value to the trunk railways, of immense advantage to the smallholder class, and, in a thickly populated country such as ours, ought to be profitable. As an alternative, or corollary, motor traction in one or other of its forms would serve the same purpose in some districts, *e.g.*, a motor lorry for goods and a motor bus for passengers, or a combination of both.

386. Finally, he strongly urged that there should be a considerable reduction of what he regarded as the present unfair burdens on agricultural land, which burdens, he suggested, should be placed on the National Exchequer; and he instanced the present payments for education, roads, lunatic, police, &c., which he regarded as national rather than local charges.

MR. D. C. BARNARD.

387. Mr. D. C. Barnard had been a County Land Agent in Norfolk for six years, after which experience he was appointed Smallholdings Commissioner for the Board of Agriculture for the Northern Counties, and his evidence dealt with the relative productivity of large and small holdings.

388. He said he had gained most of his experience on arable and mixed farms, and had found that production had been increased, in some cases strikingly, where land had been divided into smallholdings. He attributed this to the fact that the smallholder cultivated better than the large farmer, and, generally speaking, made more intensive use of every inch of his land. In regard to purely grass farms, Mr. Barnard quoted instances in Cheshire of the stock kept on three farms, both before division into smallholdings and after. These three farms, *viz.*, Ridley Farm, Field's Farm, Woolstanwood, and Morehouse Farm, Baddeley, showed a total increase after division into smallholdings of 74 per cent. in cattle, 127 per cent. in pigs, 150 per cent. in sheep, and 331 per cent. in the head of poultry kept.

389. Witness then referred to the annual inspection of the smallholdings in Norfolk. He said they were inspected every year by practical farmers and classified under six headings, according to the state of cultivation, and those who were only "fairly satisfactory" for instance, were told they would have to go the following year if they continued to farm badly, and so on. Mr. Barnard drew special attention to this system of inspection annually, which he considered almost an ideal one, saying that it helped considerably in keeping the farming up to standard and ensured the proper cultivation of the land.

390. In regard to the productivity of small holdings, witness said that it was essential for a smallholder to make the best use of his land in consequence of his very limited acreage, otherwise he could not ranch it like some of the large farmers.

for any lengthy period. Mr. Barnard also mentioned the small losses of rent as evidences of the prosperity of small holders, quoting the case of the Norfolk County Council who had collected £112,387 in rents with a loss of £85 only.

391. Mr. Strutt referred witness back to his mention of the Cheshire farms, and asked whether the census of stock was taken by the Board of Agriculture, but was told that it was done by the County Land Agent. Mr. Barnard also mentioned that the County Council's smallholders in Cheshire kept a cow to every two acres of grass, and that most of the Council's smallholdings in that county were so equipped as to provide accommodation for this head of stock.

392. Sir Ailwyn Fellowes asked whether these smallholdings were taken by agricultural labourers, and witness explained that most of them had started in that way. Mr. Barnard said that the land in Norfolk was very easily worked, and was in that respect exceptionally adapted to small holdings, though on the other hand there were practically no local markets for smallholders' produce.

393. In reply to a further question by Sir Ailwyn Fellowes as to whether there were instances of men having started as smallholders and then gone up and taken large farms, Mr. Barnard replied that he did know of cases where there had been difficulty in paying the rent the first year, and the second year that difficulty had vanished, and he considered that would often follow in the working of small holdings.

394. In answer to Dr. Douglas, witness explained that smallholdings developed on the best land and where there was the best class of applicant, as they were bound to be intelligent and industrious, but the demand depended more on the quality of the land than on any tendency of people of a particular district to take smallholdings.

395. Mr. Rea raised the question as to whether it was in the lower paid wage counties that smallholdings were a success. He said that in Northumberland, where men were well paid, there was a comparatively small demand from bona fide farm labourers for smallholdings, as they thought they were better off, considering the hours they had to work, but Mr. Barnard said that though the smallholders worked longer hours, they were able to save, which repaid them.

396. Mr. Rea then asked whether smallholders were more enterprising in their use of artificial manures, to which witness replied that they were not perhaps more enterprising but were very quick to copy any large farmer who introduced it into a county.

397. In conclusion, Mr. Barnard remarked that from his experience in Norfolk, the smallholdings were all run on a sound financial basis, a fair margin always being allowed at the outset for contingencies, &c., and the county made no charge on the rates at all. It was essential in dealing with smallholdings to foresee at the outset everything that would be required in the way of equipment and allow sufficient for everything.

19th Day, 13th February, 1917.

MR. A. GODDARD.

398. Mr. Goddard referred, in the first instance, to the large number of subjects which were necessary for the equipment of a land agent. Few other professions covered so wide a range. The land agent should have a thorough knowledge of agriculture, forestry, building construction, imperial and local taxation, agricultural law and accounts, and an acquaintance with such subjects as botany, geology, zoology, sanitation, and the legislative measures affecting real property. He should also be able to take his part in local government and in questions of rural and social economy, such as the position of the labourer, the causes of rural depopulation, &c. It was clear that a land agent could not be an expert in all these matters; he could not as a rule be as expert a farmer as one whose life business it was to till the land, nor as competent an architect as one whose sole business was the erection of houses; but he should be able to meet the farmer on an equality and carry out repairs and minor buildings efficiently and economically. Such a profession made great demands upon those who followed it, and necessitated not only a thorough technical education, but also one which would enable its recipient to deal with the various problems coming before him with a sufficient breadth of mind.

399. To secure the foundation of this, a thoroughly good general education at school must come first. Although the witness did not wish to be dogmatic on the question of classical and modern side education, he thought that as a rule the school education might with advantage have a bias towards mathematics and science, as tending specially to cultivate powers of reasoning and deduction. He did not advocate technical instruction during the school period, as specializing too soon had the effect of narrowing the outlook, which was specially to be depressed in the land agent's profession.

400. On leaving school the technical training must begin, and in this too it was difficult to be dogmatic as so much depended upon the man himself, and upon the funds at his disposal for training purposes. Mr. Goddard favoured intending land agents taking the agricultural or rural economy course at a University or Agricultural College. They should know something about agriculture before entering upon such a course or they would not benefit to the full, at any rate in its early stages; but this might be arranged by allowing them to spend their holidays on a farm during the last year or two of their school life; by that means they would pick up something of the agricultural atmosphere and some knowledge of the practical work of a farm, which would enable them to absorb more readily the more theoretical teaching of the University Course. The witness on the whole preferred the University to the Agricultural College as offering not only a wider range of culture, but a wider outlook and knowledge of men which could

not but prove useful in a profession which brought its followers into touch with every class of the rural community. It tends did not permit the University or College Course, the learner should go directly into a land agent's office, but care should be taken to select one from which land was being actually farmed, so that he might obtain practical experience in that direction.

401. Mr. Goddard stated that the Surveyors' Institution gave scholarships of a total value of £700 per annum tenable at Universities; indicating that the profession recognised the desirability of the highest training being placed at the disposal of those who might in future rise to the head of the profession. The candidates successful in the competitive examination were permitted to select their University and the course of instruction they proposed to follow; the latter, however, must lead up to an honours degree and be cognate to the profession. Holders of scholarships were required to give an undertaking that they proposed to follow the profession. As a rule in the past an agricultural course had been chosen but it was not obligatory. Scholars had gone to Oxford, Cambridge, London University (Wye College), Bristol, Durham (Armstrong College), Bangor, Aberystwyth, Glasgow (West of Scotland Agricultural College) and other Centres. On the whole they had done well and had fulfilled the object for which the scholarships had been established; but as the latter had only been given about 10 or 12 years it necessarily followed that the men who had held them were still somewhat young to have obtained important posts. One or two, however, had already done so. Scholars on completing their University Course were usually taken into the offices of members of the Institution either without any or at reduced premiums.

402. On completing the University Course, the final and practical step of the training arrived. Many advocated sending the learner on to a farm, but Mr. Goddard did not do so; in the first place much time was often wasted by pupils on farms, and in the second, if they went into a land agent's office from which farms were managed they had the opportunity of learning many other useful things as well as practical farming. It was a great advantage for the beginner to have responsibility placed upon him; and the witness considered that after a year or so at the head office in which to learn the routine and to get some experience of the drawing office, accounts, &c., as well as the outdoor work, it would be well for him to be sent down to reside on one of the estates, and to be made responsible for its management and for farming the land in hand, the degree of responsibility to be increased as he showed himself capable of bearing it. By such means a more thorough knowledge of farming would usually be acquired than by going as a pupil on a farm. Experience in repairs, in local taxation, accounts, and in dealing with tenants and labourers would be acquired at the same time.

403. If the University Course were omitted the beginner should go directly into the land agent's office, as described in the preceding paragraph. The witness did not consider that he would benefit materially by becoming self-supporting much sooner than the man who had spent three years at the University, as the latter should pick up his after work more quickly and thoroughly. The premium usually paid to the land agent for articles of pupillage varied from 150 to 300 guineas for three years, but the University candidate need only take two years and the premium would be proportionately reduced. The cost of the University or College training might be kept within, say, £150 a year; and when the student lived in one of the counties supporting the College at which he went into residence, the cost might be reduced to about £100 a year. These figures were gross, and might be taken to cover the total cost including travelling, pocket money, &c.; provided that economy was exercised.

404. During the period in the land agent's office the beginner usually came up for the Surveyors' Institute examination, which was of a searching and practical nature, and afforded an independent test by which the previous training might be judged. The land agency Sub-Division included the following subjects:—Surveying, levelling, trigonometry, book-keeping, agriculture, construction of farm homesteads, drainage, forestry (practical and theoretical), composition of soils, agricultural chemistry, local and imperial taxation, agricultural botany, principles of valuation, agricultural valuations, agricultural law, law of arbitration, &c. Candidates were only accepted for the examinations who could show that they had had a good training either with a surveyor or in a recognised place of instruction—i.e., at a University or College in a course accepted by the Council as cognate to the profession. It was thus certain that all candidates accepted by the Institution had at least had the opportunity of being properly grounded in their profession before they were allowed to sit for the examinations. Since 1881, when the examination system was established, 12,289 candidates had presented themselves for the Intermediate and Final Examinations, and of these 8,187 had passed. As most candidates who were successful in the Intermediate afterwards sat for the Final, this really meant only about 5,000 individuals, of whom about 1,250 had qualified in the land agency sub-division.

405. Mr. Goddard stated that land agency was a comparatively new profession. It began to emerge as a separate profession in the middle of last century with the great improvements in agriculture, the development of mineral estates and the tithe commutation. Before that the management of estates was largely in the hands of legal firms with little or no qualification for the work. That method had since been gradually dying out, but cases of lawyer agency could still be found; it was quite common in Scotland still. There was no doubt that the foundation of the Surveyors' Institution in 1868 and the system of examinations it had established had done much to raise the standard of professional qualifications possessed by land agents, and had thus helped to educate owners as to the advantages of employing well-qualified men. The choice, however, rested entirely with them, and instances were given (without names) of unqualified persons placed in the management of large estates.

406. It could not be suggested that owners should be deprived of the right of selection except in cases of serious mismanagement. Probably the better plan would be to approach the

problem from the other direction, and offer special inducements to those taking up the profession to qualify themselves for their duties. If work of a semi-public nature were only entrusted to men having certain recognised qualifications, such an inducement would be given that every young land agent would look forward to the time when this class of work would be entrusted to him. The witnesses referred to work under the Public Trustee, the Board of Agriculture, Local Government Board, Board of Trade, the High Court of Lunacy, Chancery, etc. He suggested that the management of estates, valuations, &c., under these bodies, and possibly under trustees and public companies also, should by statute have to be entrusted to an able, practical surveyor, a term already employed in the Settled Land Acts; and that advantage should be taken of the Real Property and Conveyancing Bill to define that term as a person possessing the qualification of membership of certain recognised chartered or incorporated professional societies, the entrance examinations for which were up to a certain standard. At present, subject to the ordinary common law liability, anyone could call himself a surveyor or land agent without any qualification at all.

407. It was common for surveyors in England to manage a number of estates, and that tendency seemed inclined to increase, as the splitting up of estates would reduce the number of those large enough to provide a salary sufficient to attract a well-qualified man. In such cases it was not unusual for a sub-agent to be sent to reside on the estate. It was difficult to lay down any hard and fast rule, but there was much to be said for this system of management. The emoluments thus obtained by the firm became sufficient to attract the very highest class of man, while the advantages of the resident agent were obtained by having the sub-agent residing on the estate. The rate of remuneration for a purely agricultural surveyor would not suffice to attract the best men to that branch of the business. Landowners as a rule did not take the Institution examinations; indeed they would not be eligible to do so unless they were being trained for the profession, *vide* paragraph 7. Some, no doubt, came into the possession of estates and continued as members of the Institution, but the proportion was small.

BRIGADIER-GENERAL THE LORD LOVAT, K.C.V.O., D.S.O.

408. Lord Lovat, who had been asked to give his views on the subject of deer forests in Scotland, explained that his evidence would refer only to the Highlands, and relate principally to the Counties of Inverness and Ross and the north of Perthshire. The view his Lordship desired to place before the Sub-Committee was that while there was too much land devoted to sport in Scotland, and the extensive dependence of the northern part of the country on sport was unhealthy, there were serious difficulties in converting deer forests to other uses, and that methods of substitution must be considered carefully by men who understood the difficulties of the subject. As these difficulties were often ignored or underrated in the public press and by individuals and authorities who ought to know better, Lord Lovat said it was necessary to insist on some of them.

409. His Lordship said that the possibility of growing wheat in deer forests was often seriously discussed. In his opinion insufficient allowance was made for adverse climatic conditions.

410. Wheat could be grown for profit in two districts in the Highlands, both under 400 feet above sea level and both many miles from a forest. He doubted whether crops could be grown to profit on the West Coast above 500 feet; above 1,000 feet in the sheltered valleys of the Central Highlands or on the East Coast above 700 feet. The tendency within the last twenty years had certainly been to put a great extent of the higher lying holdings down to grass, and less and less cultivation was practised on sheep farms.

411. At the time of the Deer Forest Commission in 1892 the area of land scheduled as old arable, or suitable for arable, which had been converted to deer forests was only 2,480 acres. Since that date the area under deer had increased by over 50 per cent., and it is probable, owing to the fact that the worst ground was selected for forests in the first instance, that a larger proportion of the new area was suitable for cultivation. In his opinion a good deal of the recently cleared land should never have been used for deer. A survey of the new deer forests, to see how much land was, and how much was not, suitable for other purposes was advisable.

412. Another fact liable to be overlooked was the difficulty of securing tenants for high crofts and farms. The tendency of present legislation and the division of both large and small low-ground arable farms would, in his opinion, tend in time to make it impossible to let the small high-lying crofts, and they would go down to grass and sheep farms. Another point was the gradual deterioration of the grazing value of Highland pasture by the absence of cattle and the presence of deer and sheep. His Lordship was himself familiar with certain grounds which could not at the present time carry the number of sheep they formerly did. Sheep farming for many years had paid so badly that outside Sutherland little or no draining was done on the lands devoted to sheep. It was true draining was done on grouse land, but that was done by the shooting tenant or landlord, not by the agricultural tenant. In the Highlands a great deal of draining had also been done in the deer forests. It was sometimes asserted that deer strayed in order to obtain the improved grazing available on sheep farms. This could only be in the exceptional cases where land had been drained for sheep. It was certainly true to say that outside Sutherland it was practically impossible to find a man skilled in draining.

413. Turning to the economics of deer forests, Lord Lovat said that from the point of view of rent, land devoted to deer produced about five times as much as when let for sheep

grazing. In parts of the Highlands five acres were required to maintain one sheep, and the rent paid was about 1s. per sheep. His Lordship let 2,400 acres for £13, and he said that the agricultural tenant thought the land highly rented.

414. With regard to rates, the witness explained that in the Highlands sporting subjects found from 40 to 60 per cent. of the rates; and as the rates, which were already very high throughout the country, had ruined many promising enterprises, a sudden change in the incidence of rating would be an exceedingly serious matter. The road rate since the advent of motor cars had alone been increased by 9d. to 1s. in many areas, and in some places it had been nearly doubled. If the reduction of the area devoted to deer was thought desirable in the interest of food production, one of the difficulties which would have to be faced would be the burden of the rates. With regard to the employment of labour, sheep farms and deer forests required about equal amounts. If the questions of road-making and shooting-lodge building were considered, deer forests supplied more employment than sheep farms. His Lordship considered that the ghillie system, which involved the employment of men at very high wages for a short period of the year, was not a desirable one. From the point of view of the production of food, his Lordship estimated that deer forests produced about two-fifths of the meat provided by sheep farms—that is, an acre of hill grazing under sheep produced about 2 lb. of meat per annum, whilst the same area under deer produced just under 1 lb. In making this comparison, Lord Lovat insisted on the importance of comparing "like with like." He quoted authorities for his statement.

415. The history of the creation of the deer forest, Lord Lovat said, was interesting as showing how the increase in the area devoted to deer had come about. Prior to 1860 there were only certain Royal forests and a few forests which proprietors shot for their own sport. With the advent of railways some portions of land were cleared, mostly on the sheep farms; and then, after the fall in agricultural values in 1873, a great many farms became unelectable and were turned into deer forests. Messrs. Mundell and others' evidence before the 1882 Game Commission was interesting in this connection. In 1892 the whole subject was enquired into by the Highlands and Islands Commission. Since that date there have been further clearances of land of sheep for deer. The reasons for this were:—First, in order to obtain the increased rent payable for deer forests; and secondly, a great many owners, having been forced to pay very large sums for the acclimatisation value of sheep (in certain cases up to 10 to 15 years net rent), determined not to be caught with sheep again. The heavy losses sustained by owners owing to this fluctuating value of sheep had, the witness said, been an important factor in accelerating the conversion of sheep farms into deer shootings. Another factor had been the fall in the value of wool and of four-year-old wether mutton, which completely destroyed the value of the wether himself, and this, added to the great expense of wintering, very considerably reduced the returns obtainable from sheep farming. On the subject of wintering, his Lordship said that ewes alone could be wintered on the hills, and even they in some years have to be taken down and fed. Some sheep travel from the Highlands to counties such as Fife for the winter, which involves heavy railway expenses.

416. Asked as to what suggestion he could make with a view to the better use of lands now under deer, Lord Lovat said that he could not look to sheep, except in a limited degree, to solve the problem. In his opinion sheep would only solve the question in those cases where the sheep runs could be extended from existing sheep farms or crofter grazings. To stock isolated forests with sheep would, on account of the high death rate in unacclimatised stock, involve an expenditure of money which no one except a Government Department would face.

417. It was important to realise—(a) that even if the capital were available, the total amount of deer forest land which could be turned into sheep farms, was strictly limited by the amount of wintering available in Scotland. All the low ground near the sheep districts of the Highlands was already let for wintering. The cost of railings hogs and ginners to distant wintering had already been the cause of clearing sheep farms in times of agricultural depression, and would probably have the same effect in the future if a similar set of conditions arose; (b) that to increase the sheep stock in Scotland, the valuation question—the "loping ill" trouble, and the whole wintering problem would have to be faced.

418. Lord Lovat stated that it was in forestry, combined with smallholdings with the higher and less profitable land devoted to deer or Highland cattle that he believed that the solution of the deer forest question lay. Forestry was an industry which fitted in with smallholdings better than any other form of employment. The men were employed in forest work in winter at a time when there was least work on their holdings. In the spring and summer there was work for the smallholder's family while at odd times there was employment for the smallholder's horse in timber and forest work.

419. There should also be carried out experiments to see what further possibilities there were in the country for wintering sheep and cattle. His Lordship had himself made extensive experiments in wintering deer on whins and brooms, and he was satisfied that for Highland cattle a good deal could be done with whins.

420. In reply to questions on various points which arose in the course of his evidence, Lord Lovat said that deer naturally went down to lower ground when snow fell, and no doubt they preferred ground which was clean for them. Deer were distinctly harder than sheep. The best method of restoring sheep would be to work outwards from the existing sheep farms. The mere planting of some of the land with trees would probably assist the wintering of sheep on the hills. Certainly experience had shown that the cutting down of trees had added to the severity of the climate.

20th Day, 14th February, 1917.

Mr. JOHN DRYSDALE.

421. Mr. John Drysdale, Secretary of the Scottish Agricultural Organisation Society, Limited, cross-examined by Dr. Douglas, said that the initial meeting of the Society was held in January, 1906, the latter itself being formed a few months later. During the first few years of its existence, the Society was entirely dependent on voluntary contributions, and no very great progress was made for about two years, witness explaining that the work was first started in the Orkneys and Hebrides, and dealt with the sale of eggs. In regard to the latter, there were now 58 Egg Collecting Societies, and the work of collecting and marketing eggs had led to other developments, and since then continuously better prices had been obtained. In these Islands Mr. Drysdale explained that the great difficulty and drawback to the work of the Agricultural Organisation Society was the iniquitous barter system conducted by merchants who sent vans about the country with various kinds of goods and accepted produce in exchange. Smallholders evinced a distinct desire to produce more now, since they were getting full market value for their produce, and production had actually increased from 20 to 75 per cent. since the introduction of co-operative methods of collection and marketing. In illustration of this fact, witness quoted an instance of one crofter who had paid a rent of £7 and whose sales of eggs amounted to £37, and the cost of his feeding stuffs £15, the balance of £22 profit being equal to three times the rent of the croft.

422. Dr. Douglas referred to the Agricultural Colleges, and their increased activities, witness replying that such work should go hand in hand with the Agricultural Organisation Society and that the chief cause of the increase in production was due to the prompt marketing and the improved prices which the middleman, in order to get the trade, had been obliged to give. He explained that the movement had been greatest amongst smallholders, and that the Society not only educated the people, showing them how business should be done, but assisted them to improve their live stock.

423. Mr. Drysdale explained that some years ago a grant of £50 per annum, available for three years, was obtained from the Highland and Agricultural Society to enable the Society to assist smallholders in the Highlands and Islands to improve their poultry. A scheme was adopted under which the money expended was calculated to effect the greatest possible benefit. Sittings of eggs from pure bred strains of good laying fowls were distributed through the local Co-operative Societies at a nominal charge. The Society had a lien on all cockerels produced from these eggs, and paid to the breeders a remunerative price for all cockerels not required for breeding purposes locally. These, in turn, were sent for distribution in other districts and supplied to the smallholders at nominal prices. In this way the money was made to go as far as possible, and at the same time to secure maximum benefits and improvement.

424. Mr. Drysdale quoted several cases showing increased production which had resulted from the establishment of Co-operative Societies in different parts, e.g., in the poultry industry especially, in the Northern Isles of Orkney the number of eggs produced had been trebled, and the production of eggs in the Island of Eday was now of more value than the total agricultural rental. Again, the Sanday Society, also in the North Isles, reported that the production of eggs had been nearly doubled since co-operative methods were introduced consequent on improved housing, general management, and better breeds of fowls being kept. Harrey Society, Orkney, also reported that the production of eggs had increased 75 per cent. since they started their Co-operative Society in 1907. A striking example of increased production is given by the Holm Society, Orkney. In 1910, during a period of three months, 9,747 dozen eggs were collected, whereas during the corresponding three months in 1915, 16,838 dozen were collected from the same farms. Societies in the Shetland Isles report an increased production of from 25 to 50 per cent. In the Outer Islands the poultry industry has been revolutionised. In the Island of Tiree, where there are five Egg Collecting Societies in the crofting townships, production has been increased 100 per cent. Societies in Caithness, Sutherland, Ross, Inverness and Argyllshire report that production has been raised from 25 to 40 per cent.

425. The question of dairying was then introduced by Dr. Douglas, in reply to which Mr. Drysdale instanced five of the first-established Creamery Associations of Co-operative Milk Depôts, showing that in 1910 the membership was 160, and in 1914 it had increased to 193. He also explained that each of these depôts was equipped with cheese-making plant, as well as the most up-to-date refrigerating plant, which enabled them to sell what milk they could dispose of profitably as whole milk, and the surplus was manufactured into cheese, thus eliminating loss to the producers and distributors alike. One great benefit derived from the formation of the Creameries was that in consequence of receiving better prices for milk, and of the work of production being conducted under less irksome conditions, greater attention was given to breeding superior dairy cattle, eliminating unprofitable cows and feeding better. Farmers who were connected with these Co-operative Depôts were no longer tied down to a restricted market, well handled, properly cooled milk being sent even to London itself and other English centres of consumption.

426. The witness submitted figures giving striking instances of increased production since Co-operative Dairy Associations had been formed under the auspices and guidance of the Scottish Agricultural Organisation Society. The 40 members of the Lugton Association now supply 20 gallons each more milk per day than they did in 1909. Dunlop Association in 1908 supplied to the depôt 156,777 gallons, and in 1915 from the same farms 195,894 gallons were

supplied, an increase of 39,117 gallons per annum. Stewarton Dairy Association reports that "the 500 gallons per annum cow" has now been eliminated from the herds of members, being no longer a business proposition. The members of Kilmaurs Dairy Association increased their milk supplies between 1910 and 1915 fully 25 per cent. In 1915 the total milk supplied was 531,456½ gallons, whereas in 1910 the supply was increased to 741,723 gallons. Other Associations report increases in production of 25 to 35 per cent. At these depôts the milk is paid for according to its butter fat contents and in this respect a marked improvement has been effected in the average quality of the milk.

427. Mr. Drysdale further remarked that, apart from the question of price, one of the most important facts about the development of co-operative dairying had been the improved conditions of life which it had allowed to women on the farms, who now had more time to devote to the raising of poultry and pigs. The Co-operative Associations also assured members against the risk of bad debts.

428. The advantages resulting from the establishment of the Co-operative Dairy Associations, however, might be summarised as follows:—(1) The life of the farmers was rendered much less irksome; (2) they were saved the excessive early rising which used to prevail, as they now sent their milk to the Co-operative Depôt; (3) increased prices had enabled the farmers to effect improvements in their live stock and farming plant. Pig rearing was also being taken up on a larger scale and with considerable success. A great saving had also been effected by the adoption of motor transit, which enabled the Associations to deliver milk to the premises of the buyers. Prior to the establishment of the Co-operative Milk Depôt at Waterside, many of the members did not produce winter milk; now they arranged to produce half the quantity in winter which they produced in summer.

429. Witness went on to say that it had been found desirable to have the Societies federated so that they should not oppose one another in a common market. The constitution of the Federation was explained, and it was stated that in practice it had been found mutually advantageous to all concerned. In reply to Dr. Douglas, Mr. Drysdale gave statistics for the five first established Associations in North Ayrshire, showing how in 1910 milk to the value of £49,154 was supplied by 160 members, whilst owing to the increased production and to prices having been advanced about 15 per cent., the value of the milk supplied had reached £85,025, with a membership of 193. The increased production had been steady and progressive.

430. In regard to the question of artificial manures, witness explained that co-operative purchase had been greatly extended among the Societies in recent years and very substantial economy had been effected in consequence. There was also a great saving in sending coal to outlying areas by bulked the orders; in some instances a saving of 10s. per ton had been effected. There was also a notable improvement in the seeds supplied, every seed being guaranteed as to purity and germination, sheep farmers especially who sent wintering for sheep from the crofters testifying to the fact that such wintering was double the value now that good seeds were sown. Then, again, the small farmers derived great benefit from the combined purchasing of minor accessories, e.g., binder twine, &c., this system putting them on the same level in the matter of price as the large farmer. A Society of crofters in Sutherland reported that since the Co-operative Societies were formed, members had got rid of the unnecessary middleman's profit, and by trading direct with the best sources of supply, better goods were obtained at considerably less price than if purchased individually and in small quantity. Cuthness also reported that in the past farmers found it very costly to buy their individual requirements from local merchants, and they welcomed the co-operative schemes for buying in combination feeding stuffs, manures and seeds of guaranteed quality. Mr. Drysdale also pointed out that a good many of the smallholders would like to get an enlargement of their holdings, and it was suggested that there would be an increase in cultivation if the smallholdings were increased at the expense of some of the larger ones which were not producing maximum crops. He urged, however, that the success of smallholding schemes depended on careful selection of the right class of occupants.

431. Dr. Douglas then introduced the question of fishery organisation, to which witness replied that a good deal could be done to help the crofter fisherman and fishermen generally in the northern and western fishing areas by stationing an organiser amongst them, who would see that the men always got full market value for their fish by putting them in touch with the best markets and arranging transit, &c. Fishery propaganda work had, for the present, to be abandoned through lack of funds. Funds obtained from a private source for this purpose were now exhausted. In addition to getting a better market for the fish, the Society also set itself to assist fishermen to obtain necessary equipment for their boats through combined purchase at first cost. A Co-operative Fishery Society was established to operate in the Moray Firth area. The progress of this Society, however, was greatly disturbed on the outbreak of war, through the restrictions imposed by the Admiralty; otherwise it was intended to extend the scheme to other fishing centres. No grant had hitherto been obtained from the Development Fund for this purpose, and witness explained that unless some public assistance could be secured, it would not be possible to further prosecute this very desirable work.

432. In regard to the kelp industry, Mr. Drysdale said that the amount produced round the Scottish coasts in normal times was about 3,000,000 tons, but it was estimated that about 12,000,000 tons could be produced if the industry was properly organised. The object aimed at was the production of an ash, rich in iodine and potash, from certain species of sea-weed. The stalks became uprooted during the winter storms and were cast up on the shore, from which they were gathered and stacked for drying until mid-summer, when they were ready for burning. In some districts, although there might be a plentiful supply of the raw material, it was wasted owing either to its inaccessibility or to a lack of resident population to undertake

the gathering and burning. Even where the population was large there often existed, Mr. Drysdale said, a certain apathy, which was difficult to understand, since the industry was undoubtedly a remunerative one and no hard conditions were imposed. The principal source of the country's supply of iodine was, he said, the Chilean mines, but these were by no means inexhaustible, and when they ran out help would probably be the most important source, as the weed came up from the sea continuously each year. Kelp also offered the most accessible source of potash, which was urgently required both in agriculture and in many other industries. The present prices and prospects seemed, the witness said, to justify the revival of the industry. The most urgent need, he considered, was a small fund placed in the hands of the Societies to enable them to erect buildings for storing the ash after it had been burned. This, if properly organised, would enable the people to get an adequate return, and so would encourage them to engage more generally in the work. Societies should also be provided with a fund out of which sums to account of wages could be paid to the workers pending the disposal of the ash. At present, in many instances, advances were obtained from the chemical companies which bought the ash, which deprived the poor people of that position of independence under which as free agents they could sell to whom they chose to much better advantage.

MR. E. JACKSON.

433. Mr. Jackson gave evidence on behalf of the Co-operative Wholesale Society, Manchester, of whose Agricultural Department he is the manager. In that capacity he was afforded opportunities for considering the question of agricultural credit. With regard to this, the witness explained that the Co-operative Wholesale Society does a large trade with Agricultural Co-operative Societies, their terms being "cash in seven days." Owing to this restriction very few societies can purchase as largely as they might, as their members do not pay promptly and the societies themselves usually have a limited capital. In this country, trading with the agriculturist is generally worked on credit, and six to twelve months' credit is often expected by the agriculturist and granted by the merchant or manufacturer; business houses have accommodated themselves to this state of things, and are doing work which should properly belong to banks. The joint stock banks do not care to cater for business of this kind; they require some tangible security in exchange for overdrafts. The present system of banking has rather told against the small agriculturist who is often very dependent upon the dealer or merchant, and Mr. Jackson suggested that facilities should be created to supply credit to agriculturists through banks. The larger farmers are not so much affected. They appear to be substantial and in a fair way of satisfying a bank.

434. To improve the existing state of affairs, the witness said that he had always been disposed towards the credit bank, in which the individual becomes at the same time the lender and the borrower, and he thought an attempt should be made to get smallholders to combine in the direction of forming these credit banks, which, however, should be termed Finance Societies. There should be a backing by some responsible party certifying that certain agriculturists were working their farms in an approved manner which was likely to be profitable, without question of loan or grant from the Government. This, he said, should be sufficient to encourage the joint stock banks to do something.

435. Lord Selborne then referred to the Finance Societies, suggesting that they should be formed round some Co-operative Society, and asked whether the loans would be made to the society or to individual members. Mr. Jackson explained that the society would make the loan to its members. The joint stock bank should give facilities to the society, the society should lend to its members, and the Government should issue some sort of certificate that the particular bank was worthy of the attention of the joint stock banks. The witness said that the average smallholder wants credit because his crops are harvested at a very much later period than that when he manures, and he wants accommodation to tide him over that period. Further, in reply to Mr. Fitzherbert-Brockholes, Mr. Jackson said he thought that existing Co-operative Associations might assist the establishment of these credit banks.

436. Mr. Fitzherbert-Brockholes asked through whom or by what machinery the Government certificates should be given, to which the witness replied that some machinery ought to be set up in the direction of inspection of agriculture over certain areas in the country, and part of the duty of those inspectors should be that of certifying the work done by existing organisations.

437. Mr. Rea suggested that, before borrowing, a farmer should be a shareholder in the society, and he remarked that quite a number of farmers could not afford to be shareholders. Mr. Jackson said that he had in mind quite small shares, £1 for instance, as obviously, in forming new societies of this kind, the thing must start in a small way, the share-capital being the only stand-by. Mr. Rea considered, however, that to make the holder of a £1 share equally entitled to consideration with the large holder might lead to bad debts. In cases of this kind, the witness suggested that all such borrowers would have to come before the Committee, and they would decide as to refusing to lend. Mr. Jackson was convinced, however, that once the societies were started, they would go on by their own impetus, and he emphasised the fact that he wanted to get credit through the bankers.

438. Dr. Douglas then drew attention to the system of credit banks instituted in Italy, where the loan is given in kind. The witness did not think, however, that the system would work in this country, as the average agriculturist would be rather suspicious of a purchase society. Dr. Douglas remarked that in Scottish banks they absolutely refuse to give any credit unless they are actually receiving deposits from the applicant.

with the crop, they were not at all encouraging. He stated, however, that the crop had not been sufficiently tested.

445. In conclusion, Sir Henry Doran mentioned the great improvement which had taken place during the last 20 years in the cattle of Ireland, and, in order to maintain this, suggested that improved farming was necessary so that young stock might be well fed, adding that an extension of agricultural education would effect this end.

Rev. A. A. DAVID, D.D.

446. The Rev. A. A. David, Headmaster of Rugby, gave evidence on the education at Public Schools of those who contemplate careers on the land, whether as owners administering their own estates, tenant farmers, or land agents.

447. He referred to the education of the Public School boy up to 15 years of age, which was usually of a uniform character, consisting of foundational training in English, Latin, French, Mathematics, and preliminary Science, including Nature Study based on observation of birds, flowers, &c., together with handwork, laying particular emphasis on the latter; it is good for a boy to feel that while he is at work he is making something that is of use.

448. The next stage of training, usually after 15 years or thereabouts, would include Physics and Chemistry and a third language, preferably Greek for the Classical side and German for the Modern side.

449. At the age of 16, the average boy would reach the final stage in his school career, and it was at this point that schools had hitherto failed to provide sufficient opportunities for the boys to follow their own aptitudes. At this age boys should not only be allowed "to study what they most affect" but should also begin the training that leads to their chosen career, provided that subsidiary subjects of study are selected and handled with a view to their educational interest. Witness explained that at present it was possible to provide on Science sides for boys who were going to be doctors and business men, and it was desirable that a boy should be put in the right category of the school curriculum—Science, Classical, or Modern—for which he was most suited, thus bending his energies in a direction in which he was personally interested. These views, witness explained, represented those of the majority of the Headmasters' Conference.

450. Lord Selborne pointed out that it was on the Science side that a boy interested in the land would best be placed, and it was in this division that the witness thought there would be no difficulty in arranging an agricultural course parallel to the course for doctors, engineers, and one or two other courses already recognised.

451. Dr. David then referred to the hope which he entertained that boys would continue to have the opportunity while at school of some practical work on the land. He said that the experience gained from Farm Squads had proved the educational value of such work during the present war, but he hoped they would remain a permanent feature of school life. He suggested that something on the lines of a School-Farm providing milk, eggs, and vegetables for the boarders, and containing experimental plots for the Agricultural Course, might be instituted with advantage to those boys whose interests, physical and otherwise, were not completely satisfied by compulsory games.

452. Witness then mentioned that in 1915 and 1916 boys were sent out from Rugby in squads to help farmers in the neighbourhood, hoeing turnips, &c., and though at present he could not trace that any real interest in agriculture had resulted therefrom, they took to the work with much interest and physically benefited by the exercise.

453. Dr. Douglas asked if Rugby had a large proportion of boys with a prospective interest in the land, witness replying that there was not a great many, perhaps a little over 10 per cent., but that even that proportion would justify an Agricultural Course being introduced into the school curriculum.

454. Witness concluded his evidence by calling attention to the need for some similar course at the Universities which would supply an intellectual stimulus and interest at present much needed for a large class of "Pne Men," many of whom might find careers on the land.

32nd Day, 27th February, 1917.

Mr. R. A. ANDERSON.

455. Mr. Anderson, who is Secretary of the Irish Agricultural Organisation Society, opened his evidence with a brief history of the agricultural movement in Ireland. In 1889, he said, when the agricultural organisation movement began, the farming industry was emerging from a very serious depression, brought about by foreign competition, a bad system of education and a very bad system of land tenure. The agricultural industry in Ireland was, in fact, completely neglected. There was only one small institute in Dublin to provide instruction for the whole country. A few creameries were in existence, some of them joint stock, some proprietary, and some co-operative.

456. Sir Horace Plunkett, who introduced the co-operative movement, was a Unionist, and this fact did not make his work easier with men who held opposite views. For a long time the farmers would not trust each other and work together; no instance of co-operation among farmers in Ireland could be pointed to as having been successful, and they were sceptical of illustrations taken from another country. For five years the work was carried on by Sir Horace Plunkett and a few associates and friends until, in 1894, the Agricultural Organisation Society

was formed, and a fund was raised amounting to £5,000 a year for five years. This money was administered by the Committee of the Society, and was used for maintaining the staff. The Society was formed in order to give coherence and energy to the co-operative movement, and to give people of different political views an opportunity of joining in the promotion of co-operation in Ireland, and its non-party and non-sectarian character had, Mr. Anderson said, been maintained throughout.

457. In starting co-operative creameries, the Society had managed to return the profits and control of the farmer's industry for him.

458. With regard to the collective purchase of agricultural requisites, the main achievement there had been in the bringing down of prices from the retail to the wholesale rate, by bulking the orders, and in this way a reduction of from 25 to 40 per cent. had been obtained, accompanied by a guarantee of analysis.

459. The policy as regards seed, Mr. Anderson said, had always been to try and get farmers to use the best—to be more particular as to the quality than the price. Formerly, however, the trade had been carried on by the ordinary country shopkeeper who had no knowledge of the seed trade at all, with the result that the quality of farm seeds generally was inferior.

460. As regards credit, the smaller Irish farmers were at that time badly situated; they could generally borrow from a Joint Stock Bank, but on terms and conditions often unsuitable to the farming industry. In Mr. Anderson's opinion, banks varied a great deal; some dealt liberally with the farmers and others did not. A great deal of credit, moreover, was obtained not through banks, but through better merchants and local traders whose rates of interest were extremely high and whose system of business was very unsatisfactory to the farmer.

461. The Irish Agricultural Organisation Society, he said, was managed by a President and Vice-President and a Committee which consisted of 16 members—4 for each province; 4 members elected by individual subscribers, and 4 others co-opted by the whole body. In addition, the Development Commissioners, as a temporary expedient, on the refusal of the Irish Department to have anything to do with the Society, had the right to elect seven persons to serve on the Committee. The members of the Committee took part personally in the work of organisation, and the whole management of the affairs of the Society was vested in them. Their services were gratuitous, only travelling expenses being given them, and even this sum was often headed back as a subscription to the Society. Regular meetings of the Committee took place quarterly, and there was also an annual general meeting, which was always very well attended. In order to give the members elected by the Society an opportunity of getting into closer touch with affiliated societies, the Committee had been divided into four bodies, one for each province in Ireland. There were also district conferences held in about 25 or 30 districts, where representatives of societies could meet, and by this means the Society was able to get into touch with the leading men of the societies in each particular locality. At the annual general meeting opinions were taken as to the government of societies, and the policy for the whole movement was decided. The societies' representatives, Mr. Anderson stated, showed a great deal of common sense and understood thoroughly the problems with which they had to deal because their knowledge of them was first hand. No societies were being started now until it seemed certain that they were going to be a success, but in the earlier stages many societies had been formed which did not ever come to maturity.

462. The staff of the Society consisted of 5 senior organisers, 4 creamery inspectors and 3 junior members, and an audit staff of 10. There was also an office staff consisting of Mr. Anderson himself, an assistant secretary, and a staff of typists and clerks. There was, he said, difficulty in getting a good type of organiser, as many were not successful in dealing with farmers; and the difficulty was increased by the fact that the employment was not permanent and the Society could not offer any pension or retiring allowance. This fact put the Irish Agricultural Organisation Society at a disadvantage in competition with the Agricultural Colleges. The men they got were usually of the same class as College lecturers, &c., but possibly of less agricultural experience. Mr. Anderson's opinion was, however, that a thorough knowledge of organising work was of more importance than the mere technical part of the training. The Audit Department audited all such accounts as the societies desired. It was self-supporting, and able to assist in inspecting the societies.

463. In the rank and file of the movement 90-70 per cent. of the total number were of the same religious and political views, and it had been strictly enjoined upon societies that they must not discuss matters leading to political or religious controversy at the meetings. This undertaking had been freely given and honourably observed.

464. Of the many societies formed by the Irish Agricultural Organisation Society, the creameries, which were at work all the year round, were, Mr. Anderson said, by far the best managed, and the most numerous. An important feature of their work was the Butter Control Scheme, the object of which was "to establish a national brand for Irish creamery butter, of guaranteed purity and uniform excellence of quality, for the exclusive use of selected co-operative creameries, affiliated and subscribing to the Irish Agricultural Organisation Society." In order that the produce of those participating in the Control might realise its full market value and ultimately obtain such recognition as would secure special classification in the markets of the United Kingdom, it was decided to admit to participation in the Control only those creameries whose standard of equipment, cleanliness and general business methods fulfilled the conditions of the scheme. This had enabled the creameries in question to increase their production of butter, and had also minimized complaints as to its quality. He went on to say that in some of the creameries cow-testing societies had been started to level up the production of milk. There were about 90-100 of these stations in Ireland, but the most active, in Mr. Anderson's opinion, was the Belkinn Co-operative Agricultural and Dairy Society's Cow-testing Association for Improving the Milk Supply. Composite testing was done once a month

at the creamery. The average cow in Ireland gave 450 gallons of milk in the year, but it was believed that this could be increased by at least 33 per cent. without interfering with the production of beef at all. The creameries made very little cheese, but Mr. Anderson thought this might develop later. He considered that the Irish creameries were among the best in the world. They had all the latest equipment, and the cost of building and plant was about £3,000 for a creamery where churning was done.

465. The agricultural societies, Mr. Anderson said, were for the most part purchasing societies. They had done very little in the direction of selling farmers' produce, but had reduced the price of fertilisers and improved their quality for farmers all over the country and even across the Channel. This had had a very beneficial influence on cropping. Where men were able to get three tons of fertilisers at the cost of two tons they naturally used a larger quantity. The Agricultural Department taught them the suitable manures for each crop, and this tended to improve the character of the tillage. In Ireland the seasons were very uncertain and spring weather was often unsuitable for cultivation, and it was necessary to watch for an opportunity to put in the crops, while in the autumn the weather was often unsuitable for harvesting. In Limerick and elsewhere the farmers took to growing "catch crops," which could be planted at seasons when it was convenient to till the ground. The men who took up this system had kept to it, and now said that they could not get on without it. This development of tillage had led to "continuous cropping," which, in its turn, demanded co-operation in the ownership of machinery, because that kind of tillage could not be carried out without very expensive plant, and small farmers could not, except by co-operating, purchase the machines individually. Even if the Co-operative Society were able to purchase only a few machines for the members it would be a great advantage. In each of the societies which owned the machines, young men were being trained to carry out repairs. There was no bad feeling about the sharing of the machines; the farmers usually arranged it by drawing lots. Farmers, labourers and others worked together in such societies as if they had a common object.

466. The credit societies were formed on the lines of the Raiffeisen system, and the chief objection, in Mr. Anderson's opinion, was that where a society of that kind was started in a mixed community, the well-to-do man would not join it, because in the case of anything going wrong he would be made responsible for the debts. None of these societies were being started now by the Irish Agricultural Organisation Society because it was felt that they had done their work; but a special clause had been added to the rules of all the agricultural societies enabling them to make loans to their members on the same lines as the Raiffeisen system. It was difficult, Mr. Anderson said, to find a money-lender now who would lend hard cash. A needy farmer wanting to borrow £10 had recourse to a strange device. He would ask one of his cows at what was known as a "Trust Auction" for £10, and three months after he would have to sell another and more valuable cow in order to pay the debt borrowed on the first one. But the strange thing about the transaction was that the cows did not change hands. The credit societies had been advanced some capital by the Congested Districts Board and the Department of Agriculture. Interest was paid on these loans annually at 3 per cent., and the amount by which the capital had been curtailed owing to the withdrawal of these funds had been made up by increased deposits from people living in the neighbourhood, at a rate of interest varying according to the length of time the money had been left in. The Joint Stock Banks lent money to the credit societies at a fixed rate of 4 per cent. They made no objection to the societies receiving deposits, because the latter were so small.

467. There were about 20 societies for the sale of poultry and eggs. Some of them sold only eggs, but in other cases they had begun to run co-operative supply stores on their own initiative in order to hold their own against the competition of the "higgler." The "higgler," or egg dealer, paid in kind and the society in cash. The societies had introduced the purchasing of eggs by weight, and so the people who supplied large eggs got the most money. The poultry also was bought by weight, dressed for the table. Many creameries and agricultural societies also dealt in eggs as a branch of their business.

468. The milling societies, Mr. Anderson said, were of very recent growth; they were started just before the War. It had been found useless to ask Irish farmers to grow wheat unless they were provided with the means of utilizing it as food. Now that they had the co-operative mills they could grind their wheat, and they had their mills for feeding cattle, &c. An efficient flour mill for local supplies could be set up for about £1,000, worked either by steam power or an oil engine. Each man brought in his own wheat and it was ground for him; oats were also grown, but chiefly for cattle-feeding. The wheat in most parts of Ireland had to be very carefully cleaned and artificially dried. Smaller and less expensive mills were worked with great advantage by many co-operative creameries.

469. There were one or two large bacon curing societies, notably one at Roscrea which was very successful, but Mr. Anderson considered the small society, which bought the pig from its members and cured it for them, even more useful. Abroad, especially in Denmark, where pigs were fed in large numbers, experiments were carried out as to the best way of feeding them. He believed that such societies would help greatly in promoting the production of pigs, for the owner was helped by his factory to see the defects in his animals and to set them right. He did not, however, think it a very wise thing for any but a very well organised and well capitalised co-operative society to start a bacon factory. At Roscrea the people had started it themselves, with some assistance from the Organisation Society, and although they had been asked to assist other bacon factories on the same lines, the Society had always refused until it could be seen how the pioneer society would succeed. As to payment, the best plan, Mr. Anderson considered, was to pay the producer of the animal by results, as this method eliminated the element of speculation and followed the safe example set by the Co-operative Creameries. In the case of the most

trade, the witness thought any other method would be risky. There was one case of co-operative meat selling in County Wexford, where the meat was only paid for when it was actually sold. He did not think that dealers had, as a rule, made large sums of money, but he considered the system a very bad one. In very few places were the cattle weighed, and this often resulted in a kind of guessing competition between farmer and dealer, in which the farmer came off second best. The cattle were sold at fairs and the small man was no match for the cattle dealer.

470. Mr. Anderson attached great importance to the Fishing Society in the Aran Islands. Most of the fish, he said, was cured and sold to America through the Congested Districts Board at Liverpool, and the selling results had been nearly doubled. The fish was chiefly mackerel and herring. Some was sold locally, but better transit facilities were needed in order to cater for the home demand for fresh fish which was practically unobtainable in Irish country towns.

471. There were two Irish co-operative trade federations, i.e., the Irish Co-operative Agency Society and the Irish Agricultural Wholesale Society. The function of the former was to sell the output of the Co-operative Creameries, and of the latter to act as the purchasing and selling agency for the other Societies. The Irish Creamery Managers' Association—a body distinct from the Irish Agricultural Organisation Society—did a very useful work in issuing a weekly market report, so that although there were still great differences in the prices obtained by some creameries as compared with others, the differences were getting less and less. In connection with purchase, great advantage was found in getting societies to pool their orders. A large part of the work done by the Irish Agricultural Wholesale Society was the fertiliser business, in which there was an advantage in large transactions. The Wholesale Society operated throughout Ireland by means of branches in different parts of the country.

472. About 12 years ago co-operative industries societies were started for lacemaking, and some of the women were also engaged in knitting and embroidery. The Templemore Society employed upwards of 100 girls regularly at knitting, and these girls earned on an average over £1 a week, which, Mr. Anderson said, was an astonishing amount in that part of Donegal where poverty had been very great. This particular Society had a trade turnover of £34,000.

473. There were also societies for the sale of various things, such as honey, fruit, vegetables, &c., which would be an impossible business without a trade federation.

474. Live stock insurance had proved a very difficult thing to introduce in Ireland. Mr. Anderson thought it was rather an unknown risk, and an instance in which the State might help with a scheme of guaranteed re-insurance.

475. The following table illustrates the position of the movement at the end of 1915. The figures for 1916 are not complete, but it is known that there are substantial increases in the number of societies, in their membership and in their trade turnover. It is anticipated that the latter will exceed £6,000,000. Part of this increase must, of course, be attributed to war prices, but, quite apart from this, the dealings of the members with their societies show a most healthy increase in volume.

Summary of Statistics, 1915.

Classification of Societies.	No. of Societies.	Membership of same.	Trade Turnover.	Observations.
			£	
Dairy	344	45,385	3,495,264	
Auxiliaries	35	—	—	
Agricultural	219	23,450	304,341	
Credit	226	30,590	48,195	
Poultry Keepers	15	4,042	84,922	
Home Industries	9	227	170	
Miscellaneous	27	7,728	156,881	
Pig and Cattle	50	—	—	(No returns.)
Flax	7	169	4,362	
Federations	2	267	552,910	
Totals	991	102,591	4,657,086	

476. The witness considered that the affiliation of societies with the Organisation Society was of very substantial benefit to the former. He did not think some of the societies could hope to do their business satisfactorily without the help given them by the Organisation Society. At the start, he thought, every society needed a Central Body, and afterwards they could come and ask it for advice about new developments. Leaflets were issued by the Society dealing with all manner of subjects of interest and importance to societies and advice was given to all the affiliated societies by letter. The Society had access to a library, where information could be obtained from all over the world. They arranged a scheme of Workman's Compensation Insurance with the Co-operative Insurance Society, and each regular hand was insured at a premium of 5s., and casual labour at the same rate; the minimum ordinary rate per cent. now for any kind of workman's compensation was 15s. The small farmer, therefore, with 10 or 15 acres employing one man could get his insurance for 5s.

477. The terms of affiliation for societies with the Irish Agricultural Organisation Society were 10s. per £1,000 of trade turnover per annum. A society's auditing was paid for separately. Mr. Anderson said that his great hope was to make the Irish Agricultural Organisation Society self-supporting. He anticipated a very large income for the Society this year. In 1914, societies had paid in affiliation fee £1,006, and in subscriptions £904; in 1915, £1,163 and £1,432; last year, £1,406 and £1,792, and the totals for these three years were £1,970, £2,596

and £3,258. Contributions had been received from both private and public funds for organisation work. The amount contributed from private sources for organisation work since 1889 was £118,895, and from public funds, i.e., the Congested Districts Board and the Development Commission £56,885, making a total of £175,780, or an expenditure of £1 15s. per head of the total organised farmers. Formerly, the Society had received a grant from the Department of Agriculture, but this had been withdrawn in 1908. The Development Commissioners gave the Society a grant of £5,320 based on the contributions of societies for 1915, at the rate of £2 for every £50 contributed and ignored all the rest of its income, thus helping the Organisation Society to stimulate the affiliated societies to contribute as much as possible towards the upkeep of their Association.

478. It had been found lately that in a number of districts where the farms were small and the farmers practically only labourers, they had not benefited at all by the war prices, and organisers were being clamoured for to start co-operative stores, as the people complained bitterly of the high prices charged for domestic requirements by the local shopkeepers. At present the Irish Agricultural Organisation Society was debarred, under its agreement with the Development Commissioners, from organising such societies, but he hoped that, having regard to war conditions, this restriction might be removed.

479. Asked as to the steps which the Society had taken to increase the production of food, Mr. Anderson stated that at the outbreak of the War they had instructed all the organising staff to urge on the farmers the necessity for increasing their tillage, and had brought out leaflets and posters on the need for economising in every way possible. These had had some result, but there had been no marked increase in tillage where it was not accompanied by milling for home consumption; and where that had been done, the tillage had been increased in some instances by over 100 per cent. Mr. Anderson considered that if tillage were to be increased to any great extent in Ireland, co-operation was essential. The chief difficulty, he said, would not be reluctance on the part of the farmer to do his duty, but the scarcity of horses, manures and seeds, especially seed potatoes.

480. In some parts of Ireland the conditions of agriculture were very primitive. Even in Donagall, where they had had agricultural instruction for the last 16 or 17 years, the spade was still used on most holdings and they had never learnt the use of the plough. A good deal of that land in the West of Ireland was very rocky and the number of farms large, but Mr. Anderson thought there ought to be no difficulty in getting the farmers to use the plough on all suitable land, provided they were shown how to do it. In some parts of Donagall they had been successfully taught how to use threshing machines. In parts of Ulster, where the farmers tilled 80-70 per cent. of their land, they had not much objection to tilling more since they had all the necessary implements, but in other parts of the country he thought there would be difficulty in getting farmers to increase their arable area. Mr. Anderson thought, therefore, that this object would be accomplished best by a guaranteed minimum price, compulsion and co-operation. If prices went back to their old level, he considered that tillage would go back also without a full measure of co-operation.

481. Amongst the farmers' families in Ireland there was a large amount of unpaid labour. Mr. Anderson did not suggest that these workers should be paid at the same rates as outside labourers, but felt that no one should work for nothing at all. The farmers could not, however, he admitted, pay this kind of labour unless they improved the cultivation of their farms. He considered that agricultural labour generally was badly paid and badly fed, the value of allowances being less than 6s. a week in most parts of Ireland (including the balance of their house rent which they did not pay). The highest war bonus he had heard of was only 2s. a week. The Department had informed him that applications had been received from 5,600 migratory men, 500 of whom were ploughmen, to go and work in southern Ireland, but that they would not go because all they could get was 15s. a week. It was estimated that 300,000 Irish labourers had emigrated during the last 40 years. At present the labourer had little or no benefit from co-operation, and Mr. Anderson thought some co-operative scheme might be devised for bringing farmers and their servants together. Mr. Anderson's impression was that the educational system in Ireland was most defective. There was nothing in a farmer's early education which fitted him for the work he had to do, although technical instruction was now available for him. With regard to communal cultivation, Mr. Anderson considered that the co-operative society should help to further it. He had had experience in the joint letting or grazing of land worked on the same plan. Societies, he said, used to take farms on the co-operative system, and their members had the advantage of a large range for their cattle, watering, &c. Speaking generally, Mr. Anderson said it was the policy of the Society to apply co-operation to every branch of agriculture, always considering the fitness of the community to carry out the scheme, and provided there was money to do it. He was of opinion that if this were not done all over Ireland, and done quickly, the outlook for that country would be very serious.

482. The chief need of the Irish Agricultural Organisation Society at present was an independent income. It would be better, the witness said, both for the Society and for the public, if it could live on its own resources. Many people objected to public funds being used to promote co-operation. He thought that if the Society had enough money of its own to carry on all the work which was necessary, and if the Board of Agriculture or another Department wanted it to take on some new work, the Society might fairly bargain with them for some remuneration for that purpose. If the levy system, which was now established, were maintained, the Society would before long be self-supporting with regard to work in connection with existing societies, and would need to turn to the State only in unremunerative enterprise. Mr. Anderson said that the Society would like the Department of Agriculture to undertake a certain amount of research work, and advise them on scientific problems, and hoped that the two bodies would be able to work together without further trouble.

33rd Day, 28th February, 1917.

MR. NORMAN REID.

483. Mr. Norman Reid stated that, although a member of the Scottish Land Court he appeared before the Sub-Committee in his individual capacity and not as representing any body or society. The main objections to deer forests might be shortly summarised under the following 12 headings, which he would like to elaborate:—(1) Reduction of the sheep stock of the country; (2) Great reduction of wool production; (3) Reduction of the supply of store cattle; (4) They lead to the use of arable land for sheep and cattle rearing that should be used for feeding and grain production; (5) The amount of food produced on a deer forest is so small that it is almost of no account as a food supply; (6) The consumption of Indian corn, &c., used as hand feeding for deer for which there is no return in food supply; (7) Deer trespass on neighbouring farms and do much damage; (8) Deterioration of grazing land owing to its not being properly grazed, drained, and burned in rotation; (9) Deer are a great drawback to afforestation, as all plantations would have to be deer-fenced and kept up for 25 years at least; (10) De-population of the country; (11) Deterioration of people of the country owing to country being devoted to pleasure and not industry; (12) The employment of unproductive labour.

484. He desired to impress upon the Sub-Committee that mere altitude ought not to be taken as an indication that the land should properly be used for deer. The Deer Forest Commission of 1892 had adopted the view that land over the 1,000-contour line might properly be used for that purpose, but the Commission had looked at the question from the point of view of the small tenant and not from that of the greatest economic production. He was strongly of opinion that in many cases the higher land was even better for sheep than the lower. They were more hardy and freer from disease. It would be unnecessary to fence such land, there would be natural divisions, and in practice it was found that few sheep strayed away from their own flock and over their particular boundary. Existing large farms of 4,000 sheep, for instance, were not farmed as a single organisation, but as a number of separate divisions, each under its own shepherd. Even without fencing, the sheep in these divisions kept together and did not stray.

485. Such land might be worked on the Club System, under which a number of small men combined to farm their several interests together as a single holding. They engaged a shepherd, and elected a treasurer, who was responsible for the finance of the undertaking and made no division of the profits until all the liabilities had been settled. But there was a good deal of land in the Highlands only suitable for large sheep farms. A certain amount of arable land was necessary for the men, and in districts where this was limited in amount, only sufficient to provide for the shepherds, the land could only be used profitably for large sheep farms.

486. Mr. Reid drew special attention to the disproportion between the amount of food produced by land under deer and that from the same land under sheep. A forest let with a limit of 25 to 40 stags would cast, if used as a sheep farm, 1,000 to 1,500 sheep, and produce from 20,000 to 25,000 lbs. of wool each year, with some store cattle in addition. Although some land might carry very little, a fair average for the forest land of Scotland as a whole would be one sheep to four acres, and one lb. of wool for every acre.

487. A return he got out in 1904 as to the area under forest in the crofting countries of Sutherland, Ross-shire and Argyllshire showed 2,920,000 acres, and Mr. Reid calculated that the total amount would now stand at 4,000,000 acres. From this he estimated that from three-quarters of a million to a million more sheep might be kept were this land deforested. It was incorrect to suppose that this land would not carry sheep. It had done so in the past, and the system of valuation which had been blamed was merely employed as an excuse by those who wished to get rid of the sheep in favour of deer. Had these 4,000,000 acres been under sheep they would have produced annually wool sufficient to have clothed the first Expeditionary Force. Mr. Reid did not wish to imply by his third objection that large numbers of store cattle could be reared on forest land; it would be impracticable to form any estimate of the total, but the number capable of being kept over the whole area would be considerable.

488. After touching shortly on objections 5, 6, 7, 8 and 9, Mr. Reid dealt with 10, 11 and 12 together at some length. He stated that there could be no question that population had fallen to a greater extent in afforested parishes than in others. The attendances at schools showed it, and he knew cases where schools had had to be closed in afforested districts as there were no children to go to them. Depopulation was, unfortunately, proceeding in practically all rural districts, but it was more rapid in those where sheep had been displaced. He was not able to give figures for a particular parish showing the population before and after afforestation. Afforestation also had a demoralising influence on the population—the keepers' was an idle occupation, high pay, and a certain amount of non-productive work during a few weeks of the year, but little to do during the remainder. The atmosphere in which such a family lived could not be compared with that of a shepherd. The English keeper was different. He was largely employed in killing vermin, looking after nests and the like, but the keepers on a deer forest had little to employ them, except perhaps some feeding in the winter, as there was little poaching of deer.

489. The witness did not suggest that deer should be entirely prohibited—some land, though small in quantity, was of no use for sheep—nor did he recommend that deer forests should be subject to special taxation, as that might be easily evaded. He would propose two means of dealing with the question:—(1) By giving everybody the right to kill the deer, and (2) by throwing open the land to the public. He did not think that sheep farmers would object to the latter, but the right of the public to walk over the land would stop stalking, and deteriorate the sporting value, so that it would pay better to use the land for more productive purposes.

490. Where the Club System was in use a certain head of cattle was kept on the land, but by individuals and not as the property of the Club. One of the advantages of the Club System was that the land was well stocked, and each family had its proper proportion. Where the families did not combine, but merely had the right to run their sheep over a certain common area, it resulted in some stocking to their full amount, while others had practically none. Such a system was less economic than the Club System, both in the labour involved and in the amount of food and wool produced. In reply to Dr. Douglas, who questioned him as to the accuracy of the view that land when afforested carried a smaller population than when under sheep, the witness maintained the opinion that he had already expressed, and stated that there would be four times as many persons on a sheep farm, unless there was some factor, such as a valuable fishing river running through the same land, which might affect the number of people.

491. Questioned by Dr. Douglas, Mr. Reid agreed that a reason given for the creation of deer forests was the failure of the sheep farms to pay their way. Sheep farming had become depressed, and tenants had said they must have great reductions either of rent or lease, the matter being complicated by the great cost of taking over the sheep at the acclimatised values, making it practically impossible to find new tenants, except at about half to one-third of the old rents. But in his opinion the fault was not in the value attributable to the acclimatisation of the flocks, which was justifiable, but in the sheep rents having been too high. It was true that the land when afforested made high rents, but these did not approach those previously charged for the land under sheep. He himself had a farm which was rented at £1,260, and was afterwards let for £500 as a farm. It would be difficult to lay down any rule as to the land which might legitimately be given up to deer; but deer existed before any land had been afforested, and it was the loss in food production, owing to the clearances of sheep, rather than the presence of a reasonable number of deer, against which he protested. For reasons already stated the findings of the 1892 Commission had no bearing on the question of sheep versus deer. It was not a question of altitude, as the older sheep did well on the higher lands. From the point of view of the food output early maturity was not economically expedient where sheep might be kept on high ground, although fashion now favoured young mutton.

492. The high rents commanded by deer forests were doubtless an important factor in connection with rating before the War, but in the present time of need they had failed as a source of local income. The return from the land let for sheep combined with grouse would have been as great, while the depopulation caused by afforestation had given rise to the anomaly that there were no people to benefit from the expenditure of the rates. Roads were kept up with no one to use them, and schools maintained with not enough children to fill them. Had there been sheep farms there would have been plenty of children to fill the schools. Forestry also would be of value in providing additional employment for the population all the year round. With regard to the gradual reintroduction of sheep, he anticipated no difficulty if the land were thrown open to them. They would increase and spread over the new land, thus obviating any large and immediate outlay of capital in stocking. The drainage of much of the land had been allowed, under deer, to fall into disrepair, but this would be remedied if the land were again used for sheep.

493. It was difficult to compare the rents derivable from deer and sheep—the latter would be calculated at so much a head—but the witness was convinced that the rent obtainable from sheep, combined with grouse, would compare favourably with those which had been commanded by the deer forests. A return to the sheep farms would necessitate an outlay in the erection of cottages, but this could be provided gradually as the numbers of sheep increased. Under the Club System there were usually two managers, who gave instructions to the shepherd, and were responsible for buying rams and for general supervision. Mr. Reid advocated an extension of the system, particularly in the case of common lands, which were often badly grazed. At present prices it would be a costly thing to restock, but he did not anticipate a continuance of war prices after peace had been declared. Enquiry would show what breeds of sheep had in the past been found most suited to the land about to be restocked, and the production of more mutton on this land would free a greater proportion of the existing arable land now used for rearing stores for the production of grain. When grain was fetching a very low price, it was more profitable to breed lambs on the arable farms than to grow grain, but these conditions seemed unlikely to prevail now.

Mr. F. T. Howden.

494. Representing the Board of Education, Mr. Howard, Divisional Inspector of Elementary Schools; Mr. Stead, Staff Inspector in Science for Secondary Schools, and Mr. Peel, H.M. Inspector of the Technological Branch in Rural Subjects, gave evidence.

Elementary Education.

495. In reply to the Chairman, Mr. Howard explained how the Board of Education, through their code, encouraged teachers of elementary schools to make use of the school environment in their instruction.

496. They allowed rural schools to adopt a restricted syllabus in Arithmetic, Geography and History in order to make room for Nature Study and Practical Subjects. The curriculum of any particular school is decided by the Local Education Authority. So far as the Board are concerned, every school is encouraged to fit itself to its own circumstances.

497. Asked when the Board began to encourage rural schools in this way, witness pointed out that about 1895 the system of annual examination, which implied one type of curriculum for all schools, town and country, was abandoned, and this involved a fresh outlook.

498. In the best rural schools, Mr. Howard said, the school environment is habitually drawn upon for material to illustrate lessons in Arithmetic, Geography, History and Drawing, while much emphasis is laid upon Nature Study. A fair number of schools give a practical turn to Nature Study with older children of 11 to 14—e.g., by studies of useful and useless meadow grasses, helpful and harmful birds and insects, sampling soils and testing seeds, the keeping of bees, poultry, rabbits and, very occasionally, of pigs and goats. These are allowed wherever the particular interests and capacity of the teacher justify them. Experience has shown that when intelligently handled these branches of Nature Study can be made quite educational, given that they do not absorb too large a proportion of the school time.

499. In 1906-7, Gardening was taught in 942 English schools to 16,988 boys; in 1913-14, 56,037 children, of whom about 3,000 were girls, were taught in 3,011 schools. Since the War broke out the number has grown very rapidly. As classes must be small if the training is to be thorough, not more than 20 scholars to a teacher are allowed, so a small extra grant of 4s. a head per year is given by the Board. It is important that the subject be treated as an integral portion of the school curriculum, not as an extra, for which recruits a member of the ordinary school staff, if he knows the subject, is more successful usually than an outsider—e.g., a practical gardener. Pressed on this point, witness explained that a practical man generally holds the utilitarian view too strongly, failing to give the scholars the necessary opportunities for experiment in his desire to cultivate skill in manipulation, while he rarely understands Gardening as a training in scientific method for which purpose it is mainly adopted in schools.

500. Some counties—e.g., Surrey, Staffordshire and East Suffolk—have encouraged school gardening greatly; in others—e.g., Hereford and Nottingham—only a few schools take the subject. In others again, where a large number of children leave at 13, the course is too short to be of much value. The Chairman asked if children could be sorted out, and those without much intellect and physically strong permitted to go to work earlier. Witness thought 14 was young enough for any one to leave; besides, the so-called "manual method," in which training is largely through the hand and the eye, has been shown, in large towns and in some rural districts like Lindsey (Lincoln) to be successful in awakening the intelligence of many children seemingly dull and backward. It is so important to have an intelligent rural population that the method ought to be given a full trial.

501. Most county authorities have developed handicraft instruction for boys and domestic subjects for girls, but separate figures to show how far they are taken in rural schools are not available. In most country schools handwork instruction is confined to wood-work, but a few, e.g., in Lindsey (Lincoln) and Somerset, include such things as the making of garden frames and implements and metal objects involving filing and soldering and also repairs to hinges, gates and the like. A few schools too have begun to train children in the practical use of other materials, e.g., string and rope, cane and willow, glass and cement. The Secretary to the Cheshire Education Authority has recently submitted such a scheme for a "Handyman's Course." The Board are encouraging experiments in handwork in order to secure more variety and greater utility.

502. The development of a rural outlook in the county school depends mainly upon the teacher. Most village schools are under mistresses. The older country teachers were trained when the ideals of education were very different; some were too old when the change came, or too stereotyped to develop fresh methods and to readjust their outlook. Asked if inspectors were not a hindrance to the change owing to their academic training, witness said that the Board have now among their district inspectors a number who understand rural affairs, and in recent years have deliberately chosen some of the assistant inspectors because of special acquaintance with rural schools. Every divisional inspector has under him one or more persons capable of inspecting gardening and handicraft.

503. Another difficulty, witness pointed out, is the size of the country school and consequently its limited staff. Various methods have been suggested and tried on a small scale with the view of improving the education of country children, e.g. (a) the establishment of schools centrally situated under masters to which older boys and girls are transferred from small schools under mistresses (e.g., in Warwickshire and Cheshire); (b) attendance at a Centre for practical subjects only by children from neighbouring villages, the children being conveyed where necessary. The Board have recently published a pamphlet entitled "A Rural Special Subjects Centre," describing such an experiment. Schemes for small local educational endowments occasionally make expenditure of income upon instruction of this kind possible; (c) experts in various subjects, e.g., butter making and poultry rearing, visit schools and give short courses with demonstrations to the children; (d) classes for teachers on Saturdays and during vacations are arranged by Local Education Authorities at Horticultural Colleges, farm schools and other centres, the travelling charges and out-of-pocket expenses of the teachers usually being paid. In this way teachers are encouraged to start gardening, fruit culture and other practical subjects.

504. In recent years specialisation in the training of teachers has been recommended by the Board; thus rural science, including gardening, can be taken as one of three special subjects by students in Training Colleges. Before the War five Colleges offered facilities in this subject, but few teachers chose it owing to the unattractiveness of salaries in rural districts and subject, and the difficulty of obtaining lodgings. In 1913, 35 men and 26 women; in 1914, 42 sometimes the difficulty of obtaining lodgings. In 1915, only 36 men and 41 women, presented themselves for examination in this subject. The Board have now gone farther and have invited Colleges to train men in handwork, one or more of the courses suggested having special bearing on rural conditions. Persons desirous of going further in these directions may spend a third year in an Agricultural

College or Technical Institution; so far only one woman has done so by entering Swanley Horticultural College. The experience of Training Colleges is that students, who are allowed to choose their own courses, will not take groups of subjects which will fit them specially for work in rural schools. Until salaries are improved the prospect is far from bright; with the present shortage of teachers, the urban schools with higher salaries and better prospects absorb the best and most highly qualified men and women entering the profession. The great majority of teachers without the full teacher's qualification (45,000 uncertificated and 13,500 supplementary teachers) are in rural schools. The average salary for a woman uncertificated teacher is 22s. to 23s. a week and for a supplementary teacher only 14s. to 15s. a week. The Chairman concurred in the view expressed that better salaries were imperatively needed.

506. Witness agreed with Mr. Bryner Jones that one difficulty in producing teachers really qualified in rural subjects lies in the fact that a two-year course is not long enough. As matters stand rural teachers must be trained to take general subjects, so little time can be spared for practical work. Crewe Training College manages to give six to eight hours a week for 32 weeks each year to practical work, but this is abnormal. He agreed further that where future teachers stay three years, as in University Colleges, they usually study for degrees and consequently are drawn away from subjects of rural importance. Higher value, in his view, must be attached to agriculture and horticulture in advanced education if this is to be set right.

506. Witness disagreed with Dr. Kelly as to the probable effect of improving the quality of teachers in rural schools. So far from persuading children to leave the country, teachers certainly since 1900 have become more interested in their surroundings and have studied them with beneficial results to the schools. To his knowledge, farmers in Cheshire (and Mr. Peet concurred as regards Lincolnshire) pay tribute to the improved intelligence and mental alertness of boys leaving school to work on the land. Cultivation of intelligence is what the Board look for. Education for children under 14 cannot be pushed far into practical affairs and general training must remain the chief aim of elementary schools. The Board are not definitely attempting to keep boys from going to the towns, but they know that the effect of bringing the circumstances of the school surroundings into the instruction helps to maintain the children's interest in country life. Witness doubted if even the best and most devoted teachers could enthuse children so far as to believe in "agriculture as a noble profession" as long as the wages of farm workers are so low.

Evening and Technical Education.

507. The Chairman expressed appreciation of the good work done in evening schools. Mr. Peet explained that compulsory attendance in the evening was impossible, since lads cannot benefit fully after 10 hours' work on the land. A few are strong enough to do so but compulsion all round implies in his view classes held not later than 7 p.m. in any case. Witness agreed with the Chairman that the aim of rural day continuation schools should be the continuance of general education, even though it be given a rural bias.

508. Questioned by Mr. Douglas as to the practical work in such schools, Mr. Peet explained that the scholars would be mostly labourers and sons of small holders. If compulsion comes he anticipated that farmers' sons will not attend such classes but will generally go first to Secondary Schools and later to winter courses in Farm Schools. Thus farmers will be brought into close touch with agricultural education in which many still have little belief. The older scholars of Evening Schools should take up different work from that of scholars in Farm Schools, such as the care of animals, machinery and the things they must see to themselves in their work.

509. Such work is best taught on the farm itself, though in connection with the school. Experience shows that knowledge of farm processes cannot be left satisfactorily to farm employment. Agriculture is calling for a higher quality of brain, but the best intellects which might thus pick up the knowledge usually leave country districts.

510. In reply to the Chairman witness said he thought that no real difficulty will be found in getting boys to school up to 16 except those on small farms; but he felt that difficulties will be great with regard to older persons. Farmers generally give no encouragement to boys going to classes and seem to think it unsettles them.

511. Much loss occurs through boys not joining classes immediately they leave the day school; they forget a great deal before joining, and in picking up the lost knowledge become disheartened. Occasionally boys are allowed to leave early on condition that they join evening classes at once. He agreed with Dr. Douglas that this plan could be developed if boys are not too tired to get full advantage from the classes.

512. Again, teachers are a difficulty; most are elementary school teachers and some are very good; but classes often cannot be started because the day school teacher is too old or is disinclined to take evening classes.

513. Occasionally women assistants run classes successfully. For farm processes the type of teacher required is a womanholder who has risen from a farm labourer. Agriculture should be taught by those with experience of farming, e.g., young farmers who have come from Agricultural Colleges.

514. In reply to Mr. Bryner Jones witness said it was difficult to find suitable practical instruction for girls. Dairying was taken occasionally but it did not develop the intellect very much, being largely repetition of processes.

Secondary Education.

515. Mr. Stend said that the Regulations of the Board of Education give grant-earning Secondary Schools wide liberty in framing their curricula. The requirement as to the inclusion of a foreign language might be relaxed if the circumstances demanded it, an exemption which

is intended to meet, for example, the case of schools in which the work has a rural bias. It is the view of the Board that many Secondary Schools in country districts would gain in usefulness if they substituted a ruralised curriculum for that usually followed. By a "ruralised curriculum" is meant one in which (a) detailed courses of work in Science, Geography, Mathematics, and Manual Instruction are modified so that the teacher makes use of the opportunities afforded by the school's environment, and (b) the work is not of a purely technical character suitable only for the future farmer. Witness agreed with Mr. Bryner Jones that the examinations taken by boys from Secondary Schools constitute a real difficulty in the way of the adoption of a ruralised curriculum, but added that under the Board's new examination proposals it was hoped that examinations would be arranged so as to suit the needs of schools with ruralised curricula. Detailed suggestions in regard to the character of a ruralised curriculum were set forth in Circular 883, issued in 1914. In reply to a question, witness explained that schools are not encouraged to include any specific teaching of Agriculture in their courses of work. On the other hand, it is recommended that agricultural illustrations should be freely used in connection with the teaching of Biology. It is thought that a curriculum of the type suggested would be as suitable for those who do not intend to follow the rural industries as for those who do. By Article 39 of the Regulations, the Board were empowered to make special grants for educational experiments. Five schools are in receipt of such a grant. Of these, two are schools following a ruralised curriculum and another is a school providing a special course designed as a preparation for the working of smallholdings. In 1913 there were 34 schools (16 boys' schools and 18 schools for boys and girls) in which more or less successful attempts were made to introduce a rural element into the curriculum. In reply to Mr. Bryner Jones, witness stated that it is of the first importance that the Headmaster of a ruralised Secondary School should have the knowledge and sympathy requisite to direct the work of his assistants and to preserve the special character of the school, even if he is not himself qualified to give instruction in rural science. It is by no means sufficient to rely on the services of a single assistant with agricultural qualifications, who may be a young man with little or no experience of teaching. Witness added that one of the difficulties in the way of the development of Secondary Schools with ruralised curricula is the want of belief among farmers in the value of Secondary Education in general and of a ruralised curriculum in particular. There is, unfortunately, little or no tendency for boys from ruralised Secondary Schools to pass on to Universities or Agricultural Colleges.

MR. KENNETH CHANCE.

516. Mr. Kenneth Chance stated that he was Managing Director of the British Cyanides Company, Limited, and in that capacity had been carrying out investigations with others for upwards of two years on the recovery of potash from blast furnace gases. Up to the end of 1916 the object in view had been to increase the quantity of potash given off in the gases in the form of carbonate which had been refined into carbonate of potash of great purity for the manufacture of optical and other glass.

517. He stated that after many disappointments methods had been adopted which were successful in largely increasing the output of carbonate of potash in such gases, but that on the instructions of Mr. A. S. Baslemont, Director of the Optical and Glassware Department of the Ministry of Munitions, to whom representations had been made as to the urgent necessity of supplementing the national supplies of potash fertilisers, he had, early in January, temporarily discontinued that work and inaugurated a new line of experiment designed to produce increased quantities of potassium chloride instead of carbonate in the gas with a view to meeting this demand. These experiments had met with a marked degree of success from the commencement, and a new process, a patent for which had been applied for, had been in operation in two blast furnaces for some weeks with very satisfactory results. Although adverse weather conditions had prevented investigations from being carried out on the comprehensive scale decided upon, the results already obtained from the operation of this process and from such investigations as it had been found possible to make at other blast furnace works rendered it possible, in his opinion, to state that a sufficient supply of potash could be obtained from the ores now dealt with in this country to provide for all the potash requirements of the country for all kinds of uses.

518. Mr. Chance referred to the existing difficulty of obtaining the potash from the gases. Plant and machinery were necessary, and in the prevailing circumstances it would be almost impossible to secure any large amount of new machinery. But there were already in course of erection plants sufficient to give about 10,000 tons of muriate of potash in the year, provided that their erection could be completed and they could be put into operation immediately. He recommended that pressure should be brought to bear upon the Ministry of Munitions to give urgent priority to the completion of these plants.

519. The witness stated that the material as recovered from the blast furnace gases contained certain proportions of cyanide and carbonate of potash which he believed to be contained in certain proportions of cyanide and carbonate of potash which he believed to be injurious for fertilising purposes; he had, therefore, ground the material with nitre cake, and he produced a sample of the resulting product, together with an analysis, showing that it contained about 50 per cent. of sulphate of soda to about 25 per cent. of potash expressed as chloride. There was also a slight trace of sulphocyanide present. He stated that there were other methods of destroying those injurious compounds, and this particular one had only been adopted because it suggested itself as the simplest and most economical. He would welcome

assistance from the Board of Agriculture in deciding the most desirable composition of fertilisers derived from the material obtained from blast furnace gases. It was all a question of cost, but he thought that potash in available form could be produced in this country on a large scale at a price not greater than that at which it was sold before the War if the same pre-war basis were taken for cost of labour, raw materials and other manufacturing charges.

520. Even without new plant Mr. Chance said he could quickly supply 50 tons for experimental purposes, but it would be desirable for an agricultural chemist to decide as to the purity of the product which was suitable for fertilising purposes, and he hoped that arrangements might be made with the Board of Agriculture to send a representative down to his works at Oldbury at an early date in order to discuss this question with him and his staff. As soon as that point was settled the Ministry of Munitions should be pressed to give priority to the supply of refining plant sufficient to enable his firm to produce from ten to fifteen thousand tons per annum.

521. Mr. Chance stated that through the courtesy of Mr. B. Walsley, who was in control of the Pig Iron Department of the Ministry of Munitions, he had obtained a good deal of information upon the potash contained in the dust collected from the stoves and boiler fires at blast furnace works, and he handed in a statement dealing with this source of supply, to be forwarded with any recommendations the Committee might wish to make to the Board of Agriculture.

24th Day, 13th March, 1917.

Mr. T. P. GILL and Mr. J. R. CAMPBELL.

(Department of Agriculture and Technical Instruction for Ireland.)

522. Mr. Gill prefaced his evidence by stating that, in view of the announcement made on behalf of the Government on the 23rd February, neither he nor Mr. Campbell had considered it necessary in their preliminary memorandum to the Sub-Committee, to refer to the questions of special means for increasing food production, agricultural organisation and credit and agricultural labour. The Department, however, fully appreciated the importance of these matters, and Mr. Gill expressed a wish to be allowed to deal with them later.

523. He proceeded to outline the factors which led to the creation of the Department of Agriculture and Technical Instruction for Ireland, its constitution and its operations. The Department was the outcome of the Report of the Reces Committee—a body of Irishmen representing different parties in the country who in 1896 drew up a scheme for the application of State aid and instruction in regard to agriculture and industries as well as for their development. With certain modifications rendered desirable by events that elapsed between the date of that Report and the creation of the Department in 1900, the general policy advocated in the Report had formed the main features of the Department's work up to the present. The idea was the constitution of a department of State with a degree of representativeness unusual in these countries—representative at once of the Crown, the local government bodies created a couple of years previously, and of those classes of the people with whom its work would be chiefly concerned. The guiding principle was that its functions should be to aid, improve and develop the agriculture, fisheries and other industries of Ireland in such a manner as to stimulate and strengthen the self-reliance of the people, and that it should include the whole work of technical instruction as it was commonly understood in its relation to industries, and to urban as well as rural conditions. It meant not merely the creation of new powers and machinery, but the taking over and co-ordination of certain existing activities which had been scattered amongst eight other departments.

524. The Irish Department was directly responsible to Parliament through a Minister of its own—its Vice-President. It differed in that respect from all the other Government Departments in Ireland. There was a permanent staff, at the head of which were the Secretary, Assistant Secretaries and heads of branches with expert and administrative officers. Replying to Dr. Kelly, Mr. Gill added that he was the present and first Secretary, and that for all practical purposes the Vice-President and Secretary were really the Department. The Chief Secretary for Ireland was President of the Department of Agriculture, as he was of other principal Irish departments, but from the beginning successive Chief Secretaries had acted as if the Department of Agriculture was directly responsible to Parliament. Of course there had been the closest co-operation between the Chief Secretary and the work of the Department on all matters which seemed to call for it. The Department had a wide and varied range of functions, and one of the main duties of the Vice-President and Secretary was to co-ordinate these numerous activities, and he thought it could be claimed that a special feature of the Department was the harmony and organic unity which characterised its work.

525. The Department was divided into the following branches:—Agricultural, which included forestry, at the head of which was Mr. Campbell, as Assistant Secretary; Technical Instruction, Fisheries, Statistics and Intelligence, Veterinary, which carried out the provisions of the Diseases of Animals Acts, and Accounts. An Assistant Secretary (Mr. Fletcher) was also at the head of the Technical Instruction branch, while each of the remaining branches was in charge of an administrative officer.

526. From an administrative point of view the work fell into two main divisions, that directed by the Department from the central office, and that administered through local bodies such as the county committees of agriculture, and county and urban committees of technical

instruction, all of which were bodies created by statute. The first of these main divisions might itself be classified into work aided through the Parliamentary Vote of the Department, all the permanent staff being paid from this vote; and that aided through what was called the Department's "Endowment Fund," administered with the concurrence of the representative Boards attached to the Department.

527. The work centrally administered included the control of a number of institutions, chiefly educational and scientific, such as the Royal College of Science, the Royal Veterinary College, the National Museum, the Metropolitan School of Art, the Royal Botanic Gardens, the Albert Agricultural College, certain training schools for teachers and agricultural stations.

528. The Department was assisted by, and had the co-operation of, statutory bodies, partly representative and partly nominated—the Council of Agriculture, the Agricultural Board and the Board of Technical Instruction. The Council of Agriculture comprised 104 members, two-thirds elected by the County Councils, and one-third nominated by the Department. Immediately after its own election, which took place at triennial periods, each of the thirty-three administrative County Councils formed a County Committee of Agriculture, and also elected two members to the Council of Agriculture, the Department nominating one member for every two so elected. The Council of Agriculture usually met twice yearly, and its functions were partly advisory and partly those of an electoral college to help in the constitution of the Agricultural Board and the Board of Technical Instruction. In its first capacity the Council advised the Department on all matters of public interest connected with agriculture or with the working of the Department itself. In its second capacity it elected two-thirds of the membership of the Agricultural Board, and for this purpose the Council was divided into four provincial committees, which met separately and elected two members from each to the Agricultural Board, or eight in all. The Department then nominated one member for each province, bringing the total to twelve. The Chief Secretary and Vice-President of the Department were *ex-officio* members, and one or other presided at the meetings of the Board. It would, therefore, be seen that the Council and Board held office for a period of three years, and that one-third of each was nominated by the Department. Replying to the Chairman, Mr. Gill stated that he, as Secretary, was not a member of the Board, except that under the Act constituting the Department it was provided that any power or duty of the Department might be exercised or performed by any person appointed by the President to act on behalf of the Vice-President during the temporary absence of the latter; and each President had appointed the Secretary as that person. Questioned further, he mentioned that about a month before the meeting of the Council of Agriculture a summons was issued by the Department, and the members were asked to send in notices of motion on any matters they wished to have placed on the agenda for discussion. These notices were expected to arrive about a fortnight before the meeting, so that an agenda paper could be issued in good time for the consideration of members. The Department also, when it wished to have a question specially discussed, put down a notice on the paper, and in this way had often obtained valuable discussions which had helped to guide its action. One of the main advantages of the Council was that twice a year it brought public opinion to bear upon the questions with which the Department was dealing. An officer of the Department acted as Secretary to the Council; the public and the Press were admitted, and the representatives of the county bodies had a full opportunity of getting problems discussed, and of putting questions face to face to the Department on all matters concerning their activities. In fact, these questions were a special feature of the meetings. The Department was thus given a foundation in the public life of the country that was an immense source of strength in carrying out its policy.

529. Replying to Dr. Kelly, Mr. Gill added that the Council could vote on any question before it. Resolutions passed by the Council were considered carefully and at the next meeting reference was usually made by the Department to the action taken thereon; or an explanation furnished should the Department have found that they could not for any reason take the action indicated.

530. In addition to electing two-thirds of the Agricultural Board, the Council also elected a number of members to another body associated with the Department—the Board of Technical Instruction, but he assumed that the Sub-Committee was not interested in that side of the work.

531. The Agricultural Board dealt with and controlled what was called the Department's Endowment Fund or that part of it available for the purposes of agriculture, fisheries and rural industries. Accordingly, if the Department submitted any scheme of which the Board disapproved, that scheme could not go through; and he agreed with Dr. Kelly that though the Board had nominally no direct initiating power—the Act describing its functions as being to advise on all matters and questions submitted by the Department—in practice it worked out quite differently, and it could not be otherwise. The Department had been guided by the Board in its policy and work to a most valuable degree. The meetings of the Board were held as occasion and questions arose, six, eight, or perhaps ten times a year, but at least quarterly.

532. The Endowment Fund was made up mainly from the following Irish sources:—(1) Local Taxation; (2) Customs and Excise, from which £78,000 was obtained annually—the equivalent of what was called the "whisky money" in England; (3) the Irish Church Temporalities Fund, £70,000, which was subject to reduction on certain contingencies; (4) the equivalent of salaries of certain Irish judgeships, abolished, yielding £12,000 a year; (5) the equivalent of expenses (£8,000) of the Glenside and Munster institutions, hitherto paid to the Board of National Education; (6) the annual sum (£5,000) given to the Royal Dublin Society for horse and cattle breeding; and (7) the sum of £19,000 given under the Congested Districts Board Act of 1909 to defray the cost of special work undertaken by the Department in the congested areas. The total was thus £190,000, made up of Irish money gathered from

various sources. Not all of it, however, was available for agriculture. £55,000 had to be taken for technical instruction, administered through the Board of Technical Instruction, £10,000 for fisheries, £1,000 for certain recurring charges, and, as stated, £19,000 had to be applied exclusively to the congested districts, so that there remained a balance of £105,000 only for agriculture. This amount was entirely at the disposal of the Department within the limits of the Act, and was administered with the concurrence of the Agricultural Board. The Treasury had nothing to say to it, though the accounts went through the Auditor-General, and the Department was responsible to Parliament for its use. That Endowment was applied mainly in two ways, (1) on schemes undertaken and managed directly by the Department, and (2) on those administered through the local bodies. The latter schemes were carried out by statutory Committees, one such Committee being appointed by the County Council in each of the 38 administrative counties. The Committee might consist of county councillors, county councillors and outsiders, or outsiders altogether. The usual practice was to appoint a number of county councillors and outsiders, the latter selected mainly on account of their knowledge of agriculture or some of its branches. It did not at all follow that the majority of the Committee were members of the appointing body.

533. The County Committee when appointed became a statutory body, and in the administration of its schemes was independent of the County Council. The latter raised a rate for the purposes of agriculture and technical instruction, the proportion for agriculture being handed over to the Committee of Agriculture to administer. From the Endowment Fund, previously referred to, the Department made a grant to the Committee which, with the amount of the rate, formed what was known as the "Joint Fund," over which, subject to the sanction of the Department, the Committee then had entire control.

534. As to the assistance given by the Department to County Committees of Agriculture, Mr. Gill said that the Department's grant was not made unless there was a local rate raised, but the grant was not necessarily in proportion to the rate. The poorest districts would suffer by such an arrangement as that. Account was taken of the circumstances of the locality. If the County Council had done all that it ought to do in the way of raising the rate, then the Department held that it had discharged its responsibility. The grant was calculated by taking into account such factors as the live stock population of the county, the area of land covered, the yield of the penny rate, the human population, and so on.

535. Each year the County Committee drew up a scheme for the ensuing year in respect of the various subjects of agricultural instruction and development devolved upon the county body. These provided for instruction in agriculture, horticulture and dairying, and for improvement in the breeds of live stock, poultry, &c. For this purpose the Committee employed a staff of expert instructors. The schemes were reviewed annually at a special meeting at which an inspector of the Department attended, and were then submitted by the Department to the Agricultural Board for approval. The Committee appointed its own secretary and expert officers, whose qualifications, however, had to be approved by the Department. In the case of the initial appointment of a secretary, the Department held an examination of the candidates and forwarded to the Committee the names of those qualified. In this way probably a better class of officer had been secured than in any other branch of local administration. He must be a whole-time officer, giving all his energy to the work. Each Committee would have at least a secretary, and agricultural, horticultural, buttermaking and poultry-keeping instructors, although usually one person attended to both poultry-keeping and buttermaking. In the larger counties two or more expert officers might be employed for each subject. The number of county officers at present included 33 secretaries, 43 horticultural and bee-keeping, 44 agricultural, and 80 poultry-keeping and buttermaking instructors, or a total of 170. A number of additional officers were at the moment temporarily employed to deal with the compulsory tillage schemes. The County Committees usually met monthly; they were representative of their counties, and through their agricultural and other instructors got into touch with practically every agriculturist.

536. In addition to the direct instruction by itinerant officers, the Department had agricultural schools for pupils of both sexes, as well as training establishments and higher educational colleges. The great majority of technical officers employed by the county bodies had been trained by the Department in one or other of these institutions, the chief of which was the Royal College of Science, analogous to what used to be the Royal College of Science in England, but which, Mr. Gill understood, was now called the Imperial College of Science. The Irish College was of university grade, its faculty of agriculture being the one through which the Department's experts and investigators were trained. Associated with that College was the Albert Agricultural College at Glasnevin, near Dublin, or, as it was usually called, the Model Farm. The Royal Veterinary College, which some years ago had been assisted through the Agricultural Board, had now been taken over by the Department. It was the College at which all Irish veterinary surgeons were trained, many of them finding employment under the Department. There were schools for the training of women in domestic economy for the urban side of the work, and the Munster Institute at Cork and the Ulster Dairy School at Cookstown for the rural side, as well as a number of other schools and colleges dealing either with agriculture or domestic economy, or some phase of practical work for both sexes.

537. The Department also administered a Parliamentary Vote known as the Science and Art grant, formerly in charge of the Board of Education at South Kensington. This grant was employed for the development of science teaching, which incidentally included rural science and school gardening in the primary schools, because it was considered that at that stage the future man of the field could be truly interested in his work. One of the Department's guiding principles was to keep in view the general, as well as the special, aims of education, i.e., that it should have regard to the calling in life for which the pupil was intended. While that principle

was kept in mind, the idea of the general culture of the youth was not subordinated to it—one of the great mistakes which he believed had been made in regard to specialised or vocational training. In other words, the aim was less to train for, than through, the calling.

538. Outlining the steps taken on the creation of the Department to initiate agricultural development, Mr. Gill, in reply to questions, stated that the nucleus of a staff was got together, at the head of which was Mr. Campbell on the agricultural side. With his assistance and that of several other experts, including a professor of agriculture at the Royal College of Science, the Department were in a position to set to work to train instructors. The demand had to be met in a somewhat hurried fashion; a three years' course had to suffice where a four years' course was now insisted upon. But so sound were the methods adopted, both from the scientific and practical point of view, that the results were generally excellent. In nine cases out of ten, the witness said, the instructors sent out had been a marked success. They had helped to carry out and co-ordinate a series of valuable experiments; and as the training had been extended there had, he thought, been an improvement in the type of man employed. The agricultural instructors were usually young men who had a thorough practical knowledge of farming. They were selected as the result of a competitive examination, when they were given scholarships at the Royal College of Science, which enabled them to complete their training without further expense to themselves. Those who had a preliminary training at the winter classes conducted under County Committees of Agriculture, or at one of the Department's agricultural schools, had a certain advantage. Arrangements were made which permitted the students to be constantly in touch with the work of the farm attached to the Albert Agricultural College, where a number of them also resided while attending lectures at the College of Science.

539. Asked for his views on co-operation, agricultural organisation and credit, Mr. Gill said that he regarded these as necessary methods of advancing agriculture. He took rather a broader view, however, than probably an out-and-out advocate of a particular system would do. He considered that there was good in all the credit systems, as well as in many of the forms of agricultural organisation not necessarily labelled co-operative. He looked upon all the activity now going on through the County Committees as an excellent example of agricultural organisation. But from various causes, into which he did not wish to enter, as good an advance in this direction had not been made in Ireland during recent years as he would have desired. He believed that much more could be done by the advancement of co-operative methods in agriculture, and he regretted that from the causes alluded to there had not been so much progress in that respect as there might have been. He hoped it was one of the ways in which they would advance in the future. At the same time he wanted to make it quite clear that there was a great deal of agricultural organisation going on, and different circumstances produced different forms in which that principle expressed itself.

540. He had observed the tendency of societies in Ireland to co-operate, not only for the production and sale of agricultural commodities, but to form themselves into trading bodies to buy not merely seeds, manures and agricultural machinery, but even household requirements, thereby coming into collision with shopkeepers and traders. He thought that was a mistaken policy because in the ordinary legitimate work of farming co-operation there was quite as much as could be done for the next twenty years, and probably those side lines had caused a lot of friction and trouble that had tended to retard the movement.

541. Mr. Gill concurred in the suggestion that agricultural co-operation was a matter of broad principle, and that the problem was how to adapt that principle to local requirements, local temperament and local circumstances. The system that might be good in one country among a certain set of people might not suit another. He also agreed that co-operative methods could be made use of in the way of production as well as in facilitating the adoption of improved methods and marketing. In Germany it had been found possible to avoid trenching on trade interests; and agricultural co-operative societies did not go into the class of trade that brought them into conflict with the general trader because as a natural piece of wisdom and good sense they found there was no use in doing so.

542. In regard to co-operative agricultural credit, he had merely to refer to the exhaustive Report of the Departmental Committee, of which he had been a member. A copy of this Report had been sent to the Sub-Committee, and it contained a complete statement to date of the whole position of co-operative agricultural credit not only in Ireland but throughout the world.

543. Questioned as to the tillage scheme, Mr. Gill stated that in effect the Regulation obliged every occupier of a holding of over ten acres in extent to till 10 per cent. of the arable portion, in addition to the amount, if any, tilled last year, but subject to a maximum of 50 per cent. Failure to comply with that Regulation was an offence against the Defence of the Realm Act, entailing liability to a fine of £100 or six months' imprisonment, or both. Still more effective, probably, as a compelling influence, was the power of the Department to enter upon the lands of defaulters or recalcitrants, and arrange for the necessary tillage. The Department could also delegate all its powers in this connection to a local authority. Unfortunately, only a short space of time was available this year for carrying out the Regulation, but the effect had been better than was anticipated. The principle had been freely accepted, and the work was being voluntarily and cheerfully taken up. The recent bad weather, however, had been a serious handicap. Those who, from slackness or lack of good-will, were likely to default would be very few.

544. Mr. Gill agreed with the suggestion that when the War was over a stimulus would be required in the way of compulsion, to secure continued cultivation, if these countries were to be more independent with regard to food supplies. The fact that the principle of compulsory tillage appeared to be generally accepted in Ireland was significant. It showed that the mind

of the country had come to the conclusion that some such provision in one form or another was needed, and he believed it would have to be a permanent arrangement. He recognised that there were outstanding differences in the land tenure existing in Ireland as compared with Great Britain. He was of opinion that it would be easier in Ireland to arrange for measures of this kind. The Land Acts made a large proportion of occupiers owners of their holdings; and where landlords still continued they had not at all the same authority over their tenants as the landlords in England had. Consequently, if pressure had to be put on occupiers in Ireland, it would have to be in some other form than through the landlords. Either a fine or tax would be the best method, diminished in proportion to the amount of tillage done by the occupier. Under the operations of the Land Acts as they stood, a number of men were in occupation of land which they did not appear to be able to deal with or put to a proper use. No matter how taxed, they could not be made into skilful and capable users of the land. In such cases in Great Britain it was proposed that the State should take over possession and arrange for cultivation. Probably a similar principle should be applied to Ireland, though perhaps in a different fashion. The best course would probably be for the State to take over by purchase the land in the hands of such a man and give him compensation on an equitable basis; then to arrange a scheme for breaking the land up into smaller holdings. He would like to see a road open to the thrifty labouring community in Ireland. The labourer in Ireland was stereotyped as a class. It was a defect of the land system; the other defect being that the cultivators themselves were stereotyped. One of the advantages of the landlord system in England was that it afforded an opportunity for the man of energy and thrift to get a farm; he had not to pay a big price for what was called tenant right. A smaller class of holding could be created out of those taken up under the arrangement suggested. A labourer who had saved some money and was able to put down a deposit towards the payment of such a holding could be assisted by the State with an advance towards the rest. A system on these lines would, Mr. Gill said, be an immense advantage to farming. Merely dividing up the land amongst a number of small holders did not *ipso facto* meet the case of providing for the more skilful men. They might have a better proportionate opportunity for making the most of the bit of land they had got, but it did not necessarily secure an outlet for the pick of the district and encourage the ablest and thriftiest.

545. Mr. Gill said that the compulsory food production scheme of the present year was merely a rough and ready emergency measure. If there was to be a permanent arrangement of this nature it might be necessary to have a thorough survey of the country. The method adopted this year, however, had this gone in it—that it laid down a maximum, or, rather, a minimum, that must be cultivated, and it imposed a penalty for not coming up to that proportion. That much might, he said, be embodied in a permanent scheme, but he would not have the penalty what it was now—i.e., a fine or imprisonment under the Defence of the Realm Regulations, but in the form either of a tax or fine per acre short of the amount required to be cultivated. He assumed that the operation of such a permanent scheme would get a large proportion of the work done, but there would be some people who, from their character and circumstances, could not possibly, no matter how fined or taxed, manage their holding successfully. It was for that case that he considered expropriation the remedy. He would be quite inclined, in most instances, to leave the occupier part of the land—just so much as he was able to manage. For all these purposes he would use the Land Commission. The Department of Agriculture would make a case to the Land Commission, and the latter would decide.

546. As regards the question of compensation in cases of expropriation, he explained that practically every holding in Ireland had already been valued more than once in recent times under the Land Acts. In the majority of cases the holdings would have passed under the operation of the Purchase Acts; the occupier was paying a fixed annuity to the Land Commission against the purchase money, and they knew its value to a penny. There was, of course, the occupier's interest as well as that of the old landlord. All that was wanted was a fixed number of years' purchase of the landlord and tenant right combined. It was an actuarial matter in nine cases out of ten. The rent would continue to be paid to the Land Commission. The occupation rent would amount to anything between ten and twenty years' purchase. Where the two interests had been sold, the landlord's and tenant's, the purchase price had not infrequently run to forty years' purchase.

547. Arterial drainage was an important question. Large districts of the country were habitually flooded and there was no machinery now available by which the drainage of these districts could be carried out. There used to be drainage boards under which the landlords and tenants of the district formed a combination, raised a rate and got assistance from the Board of Works. That machinery was obsolete now, because the landlord did not exist and other elements were not there. Then again some of the schemes necessary were too big to be carried out in that way; they should be Government public work. One farm at present might be entirely governed by the situation of another, owing to the absence of power to compel the cleaning of ditches by adjacent farmers, &c. The County Council had a county surveyor and staff; the Committee of Agriculture, which was a committee of the County Council, had an agricultural instructor and other agricultural experts. There was thus already provided the nucleus of a technical staff which could very well look after these matters. The keeping of small local woods, attention to drainage that ran through several holdings, and so on, should naturally come into the work of a County Committee through the county staff. For arterial drainage on a large scale he did not think the County Councils would do. That would have to be taken up as a Government measure, and special Boards, which might be formed from a number of County Councils covering the district, established.

548. Taking into account the importance that everybody recognised now attached to securing the maximum production of food from the soil, and the degree to which these countries were dependent upon foreign supplies, the State would be justified in adopting very comprehensive measures to make sure of that production—it could not be left to chance. Personally, however, as regards the individual occupier, he would prefer to rely far more upon persuasion and education.

549. In regard to the maximum proportion of tillage to be aimed at ultimately he was not prepared to offer an opinion at that stage. Mr. Campbell, however, suggested that 33 per cent., or one-third of the cultivable land, would not seriously disturb the Irish economic system of farming; that would be one-third of 14 million acres under rotation.

550. Up to recently, the greater part of the cultivation in Ireland had been done by the smaller holders. 80 per cent. of the farms of Ireland were under 50 acres in extent, the largest number being those between 15 and 50 acres. He agreed that about 400,000 of the 550,000 holdings comprised not more than 7 million of the country's 20 million acres, and the major portion of the tillage was done on that 7 million. About 8,000,000 acres were held by 30,000 persons. The really large farms were not tilled at all; they were mainly grazing pastures. Moreover, as the outcome of historical causes, the land included in the large holdings was the better-class. For food production purposes, therefore, it was really the large holdings that had to be tackled. He submitted a return of the production on large and small holdings which showed that on those under 50 acres, 21·5 per cent. of the area was ploughed annually, and on those over 100 acres 9·1 per cent. The smaller holdings had 20·1 per cent. under hay, and those above 100 acres 12·9. The smaller holdings carried 13·8 milch cows, the larger 5·6; and as for other cattle the smaller carried 22·7 and the large 23·1 per 100 acres.

551. It would accordingly be observed that the smaller holdings had as many young cattle as the others, while they had more milch cows and pigs, as well as horses (which were 4·9 to the smaller and 2·9 to the larger). The smaller had 13·6 pigs to the 3·3 on the larger, and 296 poultry to 52 on the larger.

552. Mr. Gill pointed out that Ireland was the principal, and a growing, factor in meeting the food requirements of Great Britain; and that the work of the Department had a direct influence in increasing Ireland's food production for Great Britain. Ireland was now, of all the countries of the world with the exception of the United States, the largest supplier of food to Great Britain. In 1912-13, to take normal times, Ireland supplied food and drink stuffs to the value of 33 million pounds, or almost as much as the United States; then came the Argentine with 31 million pounds, Denmark 21 million, British India 18½ million, Canada 18½ million, Russia 16 million, Australia 14 million, the Netherlands 15 million, and New Zealand 9 million. That gave an idea of Ireland's relative importance. She was increasing that food supply, and after the extra tillage of this year would have a still greater advance. The produce of the crops and their value was also steadily increasing.

553. In the districts where a more intensive degree of instruction was carried on under the Department, in Connaught for instance, the increase in yield had been much greater than in the other districts. That illustrated the direct relationship between the work of the Department and the increased production. The total tillage area of Ireland had been declining for a long time. It had declined since 1897-8-9 (the average of those years from that period to 1913-14-15) by 175,000 acres or 7 per cent.; nevertheless the increased yield from that diminished area was greater than the yield of the area in 1897-8-9 by 25 per cent. Thus while there had been a decline of 7 per cent. in the area under tillage, there had been an increase in recent years of 25 per cent. in the yield of the tillage. There was not the least doubt but that an immensely greater amount could be done in that direction if the Department were placed in a position to intensify their work. He would put it to this Committee that it was of very great importance to look to Ireland in a special way for an increase in food production. Great Britain was an industrial country—a great manufacturing country; and the industrial factor in its economy was a huge one. To think of extending British agriculture at the expense of the industrial side might be a mistake: at any rate it was something that might be overdue. But there was no danger of that as regards Ireland. Ireland was a purely agricultural country except for one small spot; and efforts could be piled on to agricultural development with perfect certainty of getting the best results. He ventured to anticipate that as the result of all the fresh attention now directed to agriculture adequate provision would be made for its future development. Already the funds of the Irish Department were shorter than they used to be. The War had depreciated the value of securities, and consequently, the Department's income from that source. The Department was badly in need of financial assistance to meet the demands of its growing work. He wanted the support of the Sub-Committee in securing additional funds for the Department to enable it to increase considerably on its educational and general agricultural sides the work on which it was engaged.

554. Mr. Campbell, Assistant Secretary in respect of Agriculture, Department of Agriculture and Technical Instruction for Ireland, emphasised the fact alluded to by Mr. Gill that to understand and appreciate the work the Department were doing in connection with agriculture it was necessary to bear in mind that Ireland was a country of small farmers; that the system of land tenure differed entirely from that of Great Britain; that the main industry was agriculture; and that the soil and climate were specially adapted for certain forms of food production, and particularly for dairying and stock rearing and for the production of commodities suitable to the small cultivator. The variable climate accounted for many things that were strange to the English visitor. An outline of the agricultural schemes had been given by Mr. Gill, and Mr. Campbell proceeded to deal with these in greater detail. As far as possible, they blended instruction with direct aid.

555. Improvement in the breeds of live stock was being effected by securing the location of high-class sires. This had been done by means of subsidies to persons maintaining the animals, provided the latter were made available at reasonable rates. A special Treasury grant was given out of the Development Fund to supplement the monies at the disposal of the Department and County Committees for horse breeding.

556. Agricultural instruction was provided for by at least one officer in each county, who acted under the immediate direction of the Committee. This officer, or, where more than one was employed, the senior instructor, was paid directly by the Department, for whom he acted in special cases, the Department having the right to call upon him for special services or reports. These men, while giving close attention to the individual needs of their respective counties, were required to carry out investigations in consultation with the Department's central officers and experts, and the work was thoroughly co-ordinated. The county officers were brought to Dublin for a short period each year, when they were given lectures and instruction with a view to bringing them thoroughly up-to-date. They were kept in close touch with the Department and with each other; a respect in which the Irish system differed from that in England, where the instructor, say, from Lancashire, had no connection with the instructor in Kent. Then, for special duties, for a limited part of the year, they were sent from one county to another. For example, the County Committee gave prizes for the best kept farms; these were adjudicated upon by the agricultural instructors, but they changed counties for this particular purpose. The instructors also acted for the Department in connection with the administration of certain Acts of Parliament, such as the Fertilisers and Feeding Stuffs Act, Weeds and Seeds Act, and others.

557. Before an instructor was given full charge of any work in a county he was placed for a time under the charge of an experienced officer who gave him suitable assistance and advice, and thus prevented him from making those mistakes to which a young and inexperienced instructor would be liable. When the instructor was a long time in a county the tendency was for him to get dragged down to the level of his surroundings. Every effort, therefore, was made to induce him to continue his studies. When brought to Dublin annually he had an opportunity of attending lectures by recognised experts, such as the Director of Rothamsted.

558. For horticulture and bee-keeping there was at least one instructor employed in each county, paid by, and under the direction of, the local committee. He also acted for the Department in connection with the administration of statutory enactments dealing with the destruction of insects and pests, &c.

559. One or more butter-making and poultry-keeping instructors were employed in every county, and in some cases a separate instructor for each subject. Instruction in butter-making was afforded by means of visits to private dairies and by courses extending generally over periods of three weeks, at local centres, in no way differing fundamentally from the system formerly adopted in Great Britain, except that in Ireland the courses were more systematic. Poultry-keeping instruction was similarly afforded; but, in addition, the County Committees established a number of stations from which pure-bred fowl were distributed at reduced prices. The holder of the station was facilitated in obtaining suitable birds and was paid an annual premium in respect of the number of eggs distributed.

560. A feature of the county schemes was the organisation during the winter months of local schools of agriculture, attended by the sons of farmers who could neither spare the time nor the money required to send a boy to a residential institution. The latter practice was not encouraged in Ireland. The aim was to bring the instruction to the farmers. For that reason, what were called winter schools were arranged—schools which lasted about 16 weeks and were intended for the sons of farmers who were going to reside at home on the farm. The class was held on two, three or four days in the week, and was usually taken by the county agricultural instructor, assisted by outside teachers for special subjects such as horticulture and veterinary hygiene. There might be two, three or four of such winter schools in the county, supplemental teachers being employed if necessary. It was hoped that these schools would be a little more permanent in their character, and that suitable buildings would be available in which to carry them on. The present plan was to secure a good class-room fitted up in the very simplest manner. The instruction was severely practical. Students were taken to neighbouring farms for demonstrations. Mr. Campbell said he would prefer to develop on these lines rather than on those of the institute or college.

561. The boys who attended the winter agricultural schools had been away from school for a couple of years at least, and he acknowledged that they had lost a great deal of their education. There was an idea of having an upper primary school devoted to agriculture and linking them on with the primary school. One or two experiments had been made on those lines. How to have the gap filled between the primary and the later training was a problem everywhere. In regard to agriculture the experiment consisted in selecting a rural primary school so situated that pupils from a few other primary schools who had finished their sixth standard—the normal extent of a primary school course—could attend. An agriculturist gave instruction on certain days of the week—something like that which he gave at the winter schools, though not of so practical a nature. Added to the general course of education was a continuation in mathematics, science and English for the boys who had not yet given up going to the primary school. Another experiment was under trial as a further type of school—the so-called secondary schools, whose grade of education really began at what, in other places, was called "upper primary." A considerable proportion of the pupils in attendance at these schools came from the farming class. The better class of farmer liked to

send his boy from the primary to one of these secondary schools, which were usually residential. The Department had tried an experiment with a couple of these. There was an agricultural side, with a preparation in elementary science, leading up towards some agricultural applications.

562. As regards higher training, the Department concentrated upon one system and one institution, the Royal College of Science, and endeavoured to make it a first-class one. That institution was capable of training all the men required, and it might even do more. It was co-ordinated with the Universities of the country, the arrangement being that the latter train the student for the first two years; the last two years, or the more technical agricultural course, being spent at the Royal College of Science. Next to that College was the Albert Agricultural College, representing some of the residential colleges of the Holmes Chapel type, where a boy went into residence, and the instruction aimed at being fairly technical, perhaps half technical and half practical. Below that came two or three institutions, described as agricultural stations rather than schools, where the instruction was chiefly practical. The work of the farms was done mainly by the students, who were practically farm apprentices. Instruction in the elementary principles underlying agricultural practice was given, but was confined to the evenings, wet days, or periods of the year when the students had some spare time. Below that again were the county winter schools. Accordingly, there was a regular ladder from the work of the agricultural instructor, who gave lectures through the winter, the county winter school, the agricultural station, the Albert Agricultural College, to, finally, the Royal College of Science.

563. Replying to a number of questions, Mr. Campbell stated that the great advantage of the winter schools was that they got at a large number of young men of limited means, the cost of the instruction being comparatively low. There was the further advantage that the boys did not have to reside away from their own homes or from their farms while attending the courses, and there was nothing at the school to attract them to get some other appointment. At the agricultural station the boy cost a considerable sum of money, probably £30 or £40, as compared with one-tenth of that at the county winter school. Of course the instruction was not quite so complete, but it was of a practical character and suited to the needs of the students. No really proper buildings were available for the classes. Some suitable room in the locality had to be obtained, which was generally given rent free. The ordinary primary school rooms were not to be had, as the agricultural course was given in the daytime. It was not, for many reasons, considered desirable to hold these courses in the evening.

564. The remainder of the agricultural operations were administered directly by the Department, and to these were applied the balance of its funds, plus certain monies from the Development Commission. This section included operations for which the county was not quite a suitable unit. Broadly speaking, the schemes administered by the county bodies were applicable to work from which any ratepayer could benefit, while a good deal of the work centrally directed did not so fully bear upon the individual ratepayer. Flax growing, for example, was confined to certain parts of the country, and every ratepayer could not benefit from the application of funds to that particular purpose. The same applied to creameries, and so on. This section also included provision in connection with the settlement of new occupiers, under the land operations of the Congested Districts Board, which dealt with eight of the poorer Western counties. Whilst the ordinary schemes of the County Committees operated in the congested districts, a secondary set of officers were employed, to the number of between fifty and sixty, who gave instruction of a more individual and practical character. An overster was placed in charge of a group of farmers, who by means of practical demonstrations and an intensive use of the methods of the itinerant teacher rather than by technical instruction, facilitated the new occupier in the working of his holding. Extra provision was also made for live stock in these districts, and a scheme of veterinary dispensaries was in operation. Questioned, he added that the Congested Districts Board had large estates of untenanted land upon which, when suitably divided up, tenants were placed, and it was for the Department then to take the new occupiers in hand and look after them. These men were migrated from small holdings of perhaps four to ten acres of very poor land, to holdings of probably thirty acres of good land. They had formerly been "spinde" men, and now the object was to introduce suitable farming implements and methods. They had to be taken in hand individually by practical agriculturists. As a matter of fact, each instructor was in charge of a group of perhaps 200 or 300 small holders. His duty was to be their technical and practical adviser on all farming matters. In witness's opinion this class of work was yielding by far the best results in Ireland; and this, the witness said, led him to the conclusion that in no way could the Department better spend more money in the ordinary parts of Ireland than by increasing and intensifying its agricultural instruction system. He would build on the present system, and intensify it rather than seek new methods, as he thought sixteen years' test had proved that the Department were on the right lines, and that the system only wanted to be fully developed.

565. The portion of the live stock work done by the Department directly included the maintenance of a stud farm in connection with the purchase and resale of stallions, encouragement of the breeding of pure bred cattle, and the loan of high-class stock bulls, cow-testing associations, &c.

566. As already explained, the training of teachers had been concentrated upon at one institution, i.e., the Royal College of Science, and at the Albert Agricultural College a combined course was provided in technical and practical agriculture suited to persons who would later take up the management of the larger farms, while three provincial and three special schools were in operation for instruction in practical farming. For women students there were the Munster Institute and Ulster Dairy School for instruction in the duties of the farmhouse

and farmyard. These schools also provided the necessary training for the women instructors who taught dairying and poultry-keeping under the County Committees. The Munster Institute was in existence before the Department was created. When the Department took over this work two institutions were transferred from the Board of Education—the Albert Agricultural College and the Munster Institute. Courses of a more severely practical character were provided at nine schools of rural domestic economy, chiefly in the West of Ireland.

507. The work centrally administered by the Department in regard to dairying was mainly connected with creameries, of which there were a large number. There were about eight instructors, under an inspector, who devoted their whole time to these creameries. When it was proposed to start a creamery in a district, the Irish Agricultural Organisation in many cases organised the farmers for the purpose; and when this was done the Department stepped in to advise on matters connected with erection and equipment, and later on as to costs of production, and the various processes of butter-making and sale of the produce. The Department's officers continued to visit the creamery, provided certain conditions were complied with, and to afford advice on all matters connected with the making and marketing of the butter, &c. This instruction had to be curtailed owing to the war depreciation of the Department's finances. Cheese-making had not been extensively practised in Ireland, but was being steadily developed, the Department training a number of practical cheesemakers whose services were quickly utilised. The quicker ripening classes of cheese was very suitable, particularly the Caerphilly. Cheese-making, incidentally, did not quite harmonise with the system of calf rearing and stock raising followed in most parts of the country. Farmers liked to get the separated milk back to enable them to go in for the rearing of pigs and calves, especially the latter.

508. As he now learned that the question of forestry had been referred to another Sub-Committee, Mr. Campbell said, he would pass on to flax. This industry received considerable attention as regards the cultivation of the land, selection of suitable seed, and subsequent retting and handling of the crop. A number of instructors were constantly employed under an inspector who devoted his whole time to the subject. This crop was mainly grown in Ulster, but efforts were being made to extend its cultivation to other parts of the country.

509. An officer was maintained in Great Britain to encourage the sale and facilitate the marketing of Irish produce. He was in touch with the various branches in Ireland engaged in encouraging food production. Another section of the Department dealt with the detection of frauds in connection with the sale of Irish agricultural products.

510. Reference had already been made to the control, statutory or otherwise, which the Department exercised over the sale of seeds, manures and feeding stuffs, the eradication of weeds, and the suppression of plant diseases. They formed an important feature, and were associated with agricultural research and advisory work, the Development Commissioners contributing about two-thirds of the cost of a small scheme for this purpose. This was divided into sections for (1) seed testing and the control of seeds, as well as the investigation of plant diseases; (2) plant breeding; (3) chemical analyses in connection with the control of fertilisers and feeding stuffs and for investigating problems of a chemical nature; (4) investigating diseases of animals other than those scheduled under the Diseases of Animals Acts.

511. The beneficial results of the operations of the agricultural branch of the Department, of which the witness had given but a brief summary, were generally recognised. In Great Britain they were to be seen in the improvement of Irish cattle, butter, bacon, eggs and poultry; while those who knew Irish agriculture sixteen years ago could testify to the all-round improvement in farm practice. The work, however, was not more than well started. Food production could be doubled. The minimum prices recently announced by the Prime Minister would act as a stimulus; but if not followed up by action on lines already begun there was danger lest some farmers should rest content with net returns sufficient for their immediate needs. More tillage involved increased instruction and direction for farmers, more especially in those parts where the art of tillage had suffered decay owing to the grazing system. New or extended efforts for increased food production should be grafted on to the existing schemes of the Department. Such of its activities as had yielded the best results in the past should receive special attention, and should be extended and intensified. The results which the Department had secured were got mainly by voluntary effort, but a large section of agriculturists made little or no response; and the Department had long recognised that more progress might be made by a judicious application of compulsion to the backward as well as by instruction to those willing to advance. To this end the Department had secured legislative power to enable them to enter all premises where seeds were sold, to take samples, have them tested, and the results published by placarding the district with the names of defaulters. In Ireland, power to compel the destruction of weeds also existed. It had been difficult to get the Weeds Act through. It was only got on the understanding that the concurrence of the county bodies was obtained before the Act became operative in the respective counties. A few councils refused, and it was easy, on going through the country, to tell the county that had put it into operation, and the one that had not. A good deal of inspection was involved, and inasmuch as it was inadvisable for the agricultural instructors to be employed for the purpose it became somewhat costly to work. When the Bill was before Parliament a promise was extracted that the police would not be used in its administration. These, however, were incidental difficulties of a rather drastic Act of Parliament. Clause 12 of the Fertilisers Act gave the Department special powers in Ireland; and as a matter of fact the Department itself, from the central office, controlled the whole fertilisers and feeding stuffs trade. Every manure advertised was sampled and tested. Wherever anything was found wrong the necessary action was instituted. The Department had practically taken over the entire responsibility of the local authorities in this connection.

572. In 1913 the Vice-President of the Department introduced a Bill to give the Department power to prevent the use of unsound and unsuitable stallions. It was proposed to follow this up with similar powers in regard to the use of bulls, boars and rams. Compulsory powers were also in contemplation to secure the destruction of the warble fly pest, and to secure the spraying of potatoes. The temporary compulsion of tillage of 10 per cent. of grass lands in 1917 and the proper future use of the land, as foreshadowed by the Prime Minister, were all in the direction of the same policy—that the occupier of the land must be made to use it in the national as well as in his own interest. This, however, should be subject to proper safeguards, and with the fullest provision for instruction and assistance on the lines followed at present. The Department's work suffered from a lack of provision for scientific research—a source of information and inspiration to the technical staff, and through them to the farmer. But still more did it want an institute at which practical problems of special interest to Irish farmers could be investigated—a separate establishment with a special staff, undisturbed by administrative or other duties. The present system of relying upon teachers and inspectors or members of the overworked administrative staff to deal with such problems was obviously inadequate. Mr. Campbell cited several examples to indicate the practical utility of the kind of institute he suggested, and added that he was not referring to pure research. That was another matter for which provision was also wanted, but it could be done in the higher institutions. The institute he advocated would be a fitting crown to the work the Department were gradually building up, and he sincerely hoped that before long an institution on these lines would be available.

573. Replying to the Chairman and Dr. Kelly in regard to the wages question, Mr. Campbell pointed out that there was a considerable difference in the conditions of the three countries. The majority of the holdings in Ireland were so small that the occupier was himself very often the labourer for his holding—in fact, landlord, occupier and labourer.

574. In reply to general questions, Mr. Campbell expressed the view that if the cultivated land were increased substantially but steadily, it would not interfere with the store cattle trade. The farmer who did not till his land now had to mow a considerable area for hay. The alternative was to plough some of the inferior meadow and pasture land and get straw, roots and grain off it. In that way tillage would be largely increased, and more cattle could be raised. One of the results, of course, would be a tendency to have those cattle fed at home with the increased grain and roots, and to send them over to Great Britain in the form of beef rather than as stores. He had, however, thought out that question carefully, and there was no doubt whatever that Ireland could double its area under oats and wheat and still turn out the existing number of stores.

575. Asked for an expression of opinion as to the increase that would be possible in the arable area, Mr. Campbell replied that Ireland now grew roughly a million acres of oats, and he would like to see two millions. At present 700,000 tons of maize were imported; the equivalent of that could be easily grown upon a million acres of land now under inferior grass. Fifty years ago Ireland grew just about twice as much oats as she now did, and that, he considered, was a conclusive answer to any doubt about its being possible now.

576. He quite agreed that certain parts of the country might be left in grass, and other parts of the country tilled up to 40 or 50 per cent. Eventually some consideration of that kind should come into play. For instance, he was not in favour of ploughing up the whole of the county Meath. There was not, however, a single farm in any part of the country that would not be more economic if a certain proportion of it were ploughed, sufficient to give permanent work for a labourer and to provide winter food for young cattle. He did not wish to interfere with the summer beef production, but there was plenty of second class land, even on the best fattening holdings, which should be tilled.

577. There was a belt from Dublin, right west, roughly speaking, mainly under grass. If that land were broken up into farms larger than the farmer could work himself, provision would have to be made for the erection of cottages for the labour required. At present, under a number of statutory enactments, cottages and allotments were provided for agricultural labourers by the rural district councils. The total number erected up to 31st March, 1916, was 47,644; of these, the number with allotments not exceeding half an acre was 17,327; with allotments between half and three-quarters of an acre, 2,192; and with allotments exceeding three-quarters of an acre, 27,625. The numbers in the different provinces were: Ulster, 8,857; Munster, 18,873; Leinster, 16,956, and Connaught, 2,358. The maximum area of land which could be allotted to a cottage was one statute acre. The lands were acquired either by lease for a term of years not exceeding 99, or by absolute purchase, compulsorily or by agreement. They were usually purchased compulsorily, an arbitrator determining the compensation payable to the parties from whom the lands were taken. In the case of lands taken on lease, the Irish Land Commission fixed the rent to be paid therefor by the rural district council. The average weekly rent of a cottage with half an acre plot was 11d., and of a cottage with an acre 1s. 2½d.; but the rents varied according to the circumstances of each rural district. These rents were not sufficient to discharge the annual liability in respect of the loans advanced for the cottages and plots, the deficit being made up partly by a Government subsidy and partly by the ratepayers of each rural district. The tenancies were weekly or monthly, and might be determined at any time by either party. The cottages and plots remained the property of the local authority. The Acts did not contemplate that the tenants should become owners. The central administrative authority for the purpose of the Acts was the Local Government Board for Ireland, on whose

recommendation loans were made to the local councils by the Irish Land Commission on the same terms as they advanced loans under the Land Purchase Acts, viz., at the rate of £3 6s. per cent. (covering principal and interest) for a period of 68½ years; 36 per cent. of this charge was defrayed by Government, thus making the net charge falling on the local authority £2 1s. 7d. for every £100 advanced, of which a portion was made up by the rents and the balance out of local rates. The average cost of providing a cottage had been £180.

578. Considerable areas of Irish land, Mr. Campbell said, needed drainage and re-drainage. If public monies were available for the necessary arterial drainage, he did not anticipate difficulty in having the minor work done.

25th Day, 14th March, 1917.

Mr. LESLIE SCOTT, K.C., M.P.

(*Chairman of the Agricultural Organisation Society.*)

579. Mr. Leslie Scott opened his evidence by saying that he would divide his remarks into four main heads:—(1) the need for agricultural organisation in England and Wales; (2) what the A.O.S. has done; (3) a few criticisms on the A.O.S. and the ways in which it has been limited in its activities or, it may be, failed; and (4) what the A.O.S. think of doing by way of strengthening and making more useful the organization that now exists.

580. The first point, of course, was to realise the importance of organization, and he considered that the time had come to interpret the objects of the A.O.S. as having a wider application than the furtherance of co-operation in agriculture, and to treat them as covering, as the title of the Society implied, the whole field of organization in agriculture.

581. It is worthy of note that nearly one-half of the cultivated land of England and Wales is held by men whose holdings are under 150 acres, and that these small farmers and smallholders amount to about 87 per cent. or, say, seven-eighths of the total number of farmers in the whole country. The smaller the man, the more need he has of organization to help him in his business, and Mr. Scott explained that he regarded any holding of less than 150 acres as a smallholding, inasmuch as such a farmer is not likely to have much personal capital or to be a man of great scientific education. Organization is, therefore, needed to help him to do, by means of that assistance, what the bigger man could do without it, both in regard to the carrying on of his business (i.e., the purchase of requirements at a low cost and of good quality, the utilization of the best type of machinery which he could not afford to get by himself, the obtaining the best value for his money by bulk buying the orders), and, in overcoming all those difficulties which he has to meet as a result of his want of financial strength and his want of skilled knowledge of the process of farming. Then by organization the small man can get the advantage of all that scientific knowledge which, broadly speaking, characterises the big farmer. Another incidental advantage of organization is that the small man rubs shoulders with the big man, the ignorant with the knowledgeable and experienced man, and so gets a further advantage in that way. The witness said that the success of the smallholder in Denmark and Belgium is almost entirely due to the organisation that they have. On the other hand, the want of organization has two harmful results, which have been brought home to us very much just lately:—(1) great loss of efficiency to the individual, and (2) a great loss of efficiency to the nation.

582. The A.O.S. had a very small beginning, Mr. Nugent Harris being practically alone for a couple of years, with an income of next to nothing; the Society is indebted to him for his valuable services rendered both at the inauguration of the Society and during the subsequent years of development. Mr. Scott called attention to the statistical figures at the end of 1915, which shewed that there were then in existence 561 societies with a membership of 55,831 and a turnover of £3,428,960. Of these 561 societies, 213 were farmers' trading societies having for their object the purchase of farming requirements and the sale of produce. Of these 213 societies, 22 had a turnover of over £20,000 with a combined turnover of £1,828,814. Up to 1908 the A.O.S. was greatly handicapped by want of money, depending entirely on voluntary contributions. Then the opportunity arose of obtaining a grant from the Government for work that was of national value, and the Society received a grant from the Small Holdings Account of £1,600, subsequently increased to £2,000. In 1910 the Development Commission was appointed, and the development of agricultural co-operation was one of the first objects contemplated by the Act as a means of aiding and developing agriculture and rural industries. In that year the Board of Agriculture itself made an application to the Development Commission for an annual grant of £20,000 in order that they might develop agricultural organisation. The A.O.S. also made an application estimating the amount which they could usefully spend at £20,000. The Development Commission considered the matter and made a report, and the witness said he would like to call particular attention to that considered report, wherein the Commissioners expressed the opinion that co-operation is particularly the kind of movement in which it is essential to retain the enthusiasm of voluntary workers, and that they felt the spontaneous character of the movement had a better chance of surviving if the Government assistance were given to a voluntary organization rather than to official bodies. Over-emphasis of the official element would be disliked by farmers, who preferred dealing with someone with whom they could get into close and friendly touch at their markets, &c., and who would sympathise with them at all times. Mr. Scott referred also to the landowners of this country, who, he said, broadly speaking, were a high minded, unselfish, and patriotic class, and anxious to help agricultural organization; but their help would be lost, he felt sure, if the movement was handed over to officialdom.

583. Dr. Douglas at this stage put questions to the witness as to the income of the A.O.S. The latter in reply referred him to a Report from which he read extracts as to the Society's income, explaining that if the Society increased its income, the grant which they received from the Development Commission would automatically rise, up to a limit of £12,000. Mr. Scott, however, held strongly the view that a Society which is performing national functions like the A.O.S. ought not to be looking to voluntary subscriptions at all. In doing that part of its work which was required in the national interest, it should have all its expenses defrayed by the nation. The A.O.S. has other functions, of course, viz., to help the individual farmer and cultivator, and for that work the individual ought to contribute in proportion to the value received. The two sources of income, Mr. Scott held, ought to be *Government grants* and *contributions* from farmers and smallholders for value received. But he explained that the A.O.S. does not come into direct contact with the individual farmers, but through the Farmers' Co-operative Societies which they set up, and so, if the farmers really get value through the organization which is created by the A.O.S. there should be a substantial contribution from these Co-operative Societies. As an instance of the work the A.O.S. might undertake directly affecting the individual members of societies, he referred to the necessity of establishing a sound system of book-keeping among farmers, which is sadly lacking at present.

584. The witness then referred to the aims and objects of the A.O.S., suggesting that the first necessity was the establishment of a strong farmers' co-operative trading society in every district in England and Wales—lack of money for organization purposes had been the chief hindrance hitherto; secondly, the establishment of Poultry Societies, Credit Societies, &c., in addition to Trading Societies; lastly, the linking up of Trading Societies with a central wholesale agency, having its depots at suitable provincial centres, particularly the chief ports. Mr. Scott then referred to the methods of working adopted by the A.O.S. under the headings of propaganda, organization and assistance rendered to individual members of societies. He pointed out the limitations placed on propaganda and organization work owing to the want of sufficient staff. He explained that the A.O.S. was managed through a Board of Governors consisting of 26 members, partly elected and partly nominated, the Governors working through sub-committees which dealt with different branches of the work. Mr. Scott expressed the opinion that in practice the constitution of the A.O.S. as set out in the Memorandum and Articles of Association was cumbersome and would need revision. He then referred to the staff of the Society both at headquarters and in the country and pointed out that the organizers employed needed to be men of special qualities, and should have a special course of training. They might be mainly selected in normal times from men leaving the Agricultural Colleges; they could come to Head Office for a time, then go to one of the A.O.S. branches, and finally, to finish their training, spend a short period with one of its large societies, and in this way get a good grasp of the whole business.

585. Mr. Scott then dealt with the A.O.S. Branch policy. He considered that the Society should be staffed on the basis of at least one Organizer for each administrative county. The question as to whether it was more economical and efficient to control these organizers from headquarters or to work through branch offices was, he thought, a matter for further consideration. The branch policy probably increased local interest. It might be well to try both plans for a time before coming to a final decision.

586. Dealing with future work to be accomplished by the A.O.S., Mr. Scott drew special attention to the great and important field of organization in respect of the co-operative use of labour-saving machinery for which the small man has neither the capital nor the labour; of the disposal of produce, the better organization of markets and means of transport. He drew attention to the bureau of information which the A.O.S. had already set up to supply societies with information as to prices ruling for certain classes of perishable produce in different markets. Another question of very great importance was the possibility of using the A.O.S. movement in connection with agricultural education and expert assistance. The matter was, he submitted, one which deserved the earnest attention of the Reconstruction Committee. Mr. Rea asked whether the trading societies returned a fixed price to the farmers, or whether they sold their produce to the best advantage, and returned the full amount less commission. Mr. Scott replied that the societies generally acted as commission agents and not as buyers, the rate of commission being very low. Mr. Scott then briefly explained the objects and work of the various classes of societies under the following groups:—Purchase of Requirements; Dairy; Egg and Poultry; Auction and Sale of Produce; Land Renting (Smallholdings and Allotments); Credit; Miscellaneous; and submitted as exhibits examples of each type of society.

587. Mr. Scott then dealt briefly with the special activities of the A.O.S. during the War, especially in regard to the assistance the Society had been able to render in connection with organization, having for its object increased food production. He called attention to the number of new allotment societies, village war food societies and pig societies which had been formed. He also referred to the part the Women's Institute Movement had been able to play in this direction.

588. Mr. Nugent Harris then took the witness' chair. Mr. Rea asked whether the system of prompt payment had not increased very largely recently, and Mr. Harris agreed, adding that "cash within 28 days" had tended to squeeze out the type of man who required credit.

589. Dr. Douglas asked whether anything had been done in regard to co-operation among fishermen, but Mr. Harris replied that very little had been done in that direction, and there was a separate body dealing with that.

590. Dr. Kelly brought up the question of better living where co-operation was introduced, and Mr. Harris replied that the Society had touched that side very closely since the

War, but before the War the Society touched it in one particular direction, and that was in connection with the A.O.S. policy to institute allotment associations in industrial centres. A very striking and successful instance of this work was provided in connection with a boot factory in Leicester, where both the mental and physical side of the employees was deteriorating owing to the monotony of their work, and when the A.O.S. introduced an allotment association (Aylestone Co-operative Allotments Association, Ltd.) new life was created, and the lives of the employees toned up considerably.

26th Day, 24th April, 1917.

The Right Hon. ROBERT MUNRO, K.C., M.P.

(Secretary for Scotland.)

591. Mr. Munro explained that, in virtue of his office as Secretary for Scotland, he was also responsible for the Board of Agriculture for Scotland. The Board of Agriculture was separated from the Board of Agriculture and Fisheries in 1911. At that time he was a private Member of Parliament, and was therefore not in a position to make an authoritative statement as to the reasons which caused the Government of the time to favour the establishment of a separate Department for Scotland. Public opinion in Scotland was in favour of decentralisation, and although there had been a certain amount of opposition to the change, mainly from large farmers, this had now, to a considerable extent, been modified. It was still too soon to judge the work of the Scottish Board, as it had only got into working order two years prior to the War, but he was convinced that public opinion in Scotland would not favour a reversal of the policy embodied in the Act of 1911. Mr. Munro reminded the Committee that he had only held his present office about six months, and therefore could not speak with the authority of long experience on the work of the Department and the possibility of improvement or extension in any direction.

592. As regards the scope of the Secretary for Scotland's Department, its main functions were as follows:—It exercised in Scotland the criminal and other jurisdiction which the Home Office had in England, except, broadly speaking, as regards mines and factories. This gave it control of the criminal law administration (so far as was met in the hands of the Lord Advocate), of the police, and of prisons, and implied responsibility for law and order. In the spheres of public health and poor-law, the Secretary for Scotland controlled the Local Government Board for Scotland, whose offices were in Edinburgh. He also controlled the Scottish Education Department, the Fishery Board for Scotland, the Board of Agriculture for Scotland, and the General Board of Control for Scotland, which dealt with lunatics and mental defectives. He had, in addition, a variety of miscellaneous jurisdiction, inherited from the Home Office and other departments, whose powers were transferred to him in 1885 or 1887, or conferred on him by subsequent legislation. He had, further, to represent the general interests of Scotland in the Cabinet and in Parliament, and to supervise and, assisted by the Lord Advocate, to take charge of the Scottish legislation promoted in his department. He was also frequently consulted by other departments in matters of special interest to Scotland. This was doubtless a wide range of duties, but, as reference to the Estimates would show, the Scottish Office staff was not large, and, in point of fact, the detailed work of administration was largely carried out by departments in Edinburgh, with only occasional reference to the Scottish Office on points of policy or very important individual cases. The conditions of the last few years had, of course, been abnormal, and must remain so during the War.

593. In reply to Dr. Douglas, Mr. Munro stated that in addition to the duties already enumerated there was a considerable amount of patronage to dispense, which entailed a certain amount of enquiry and no little responsibility. So far as the Scottish system of placing so many departments under one official head was concerned, he was not sufficiently versed in the English system to compare the degree of Ministerial responsibility under the two systems; but he was satisfied that the staffs of the various departments might safely be trusted, with the occasional reference to headquarters already mentioned, to carry out their work efficiently.

594. The main reason in favour of the inclusion of agricultural administration in the matter controlled by the Secretary for Scotland was, he thought, that that Minister represented Scotland in the Cabinet, and that the inclusion of another Scottish Minister in that body was not probable. It might be argued that the presence of a Minister of Agriculture for England and Wales in the Cabinet afforded a strong reason why Scottish agriculture should be placed under that Minister. That arrangement, of course, was in force until 1911, when the separate Scottish Board was established and brought into relation with the Secretary for Scotland. The whole question was discussed in the debates on the Landholders Bill, and it was not practical policies to suggest a return to the previous state of affairs, even with the difference which a separate Scottish Board implies. The feeling in Scotland was that, with a President common to England and Scotland, the special interests of Scotland would be bound to suffer at any point where they might not entirely harmonise with those of English agriculture.

595. In reply to Dr. Douglas, Mr. Munro stated that he saw no reason why the supervision of agricultural matters should not be included among the duties imposed upon the Secretary for Scotland. His own attention had been largely occupied with such matters owing to the exceptional circumstances induced by the War, but even in time of peace he would wish to give equal attention to them. He was aware that Mr. McKinnon Wood had stated that it was impossible for

one man to look after the interests of the other Scottish Departments and the Board of Agriculture, but that was before certain administrative changes in the Scottish Office had taken place. In those days the only link between the Scottish Office and the Department of Agriculture had been the Private Secretary, but now official communications passed through the Scottish Office staff, who were able to give the Secretary for Scotland the benefit of their advice, and to relieve him of a good deal of work which had formerly devolved upon him. Mr. Munro stated that he considered that any disadvantage which might accrue through agriculture being only one among many interests committed to one Minister was more than counterbalanced by the advantage of having those interests directly represented in the Cabinet.

596. Any large increase of the duties of the Board of Agriculture for Scotland would, of course, have to be considered on its merits, and the question might conceivably arise whether the change necessitated an alteration in ministerial arrangements. But it was difficult to discuss such matters *in vacuo* without reference to any particular changes under consideration. If increased ministerial control of Scottish agriculture were thought advisable, and control by the President of the English Board were ruled out, alternative methods would be the appointment of a Minister with this as his whole duty, either (a) independent of, or (b) subordinate to, the Secretary for Scotland. As stated above, so long as the Secretary for Scotland remained the only Scottish Minister in the Cabinet, it would seem essential that any other Minister dealing with Scottish agriculture should be attached as an Under-Secretary to his Department, otherwise Scottish agriculture would not be voiced in the Cabinet by a Minister having solely Scottish interests to consider. This was the system actually in force in Ireland, where the Chief Secretary was President of the Department of Agriculture, and the Vice-President, though a Member of Parliament and Minister, was responsible to him. It would, of course, be possible to copy the Irish system, although the fact that it had been in existence for twelve years when the Scottish Board was established and was deliberately not copied when the Scottish legislation was passed only five years ago, was against such action. The appointment of a Scottish Under-Secretary for Agriculture would necessarily involve considerable changes in the machinery set up for the Scottish Board in 1911. Such a Minister would presumably supersede the functions of the Chairman of the Board. If his office were in London he would require to duplicate the Edinburgh staff by the addition of a London staff. If, on the other hand, it were in Edinburgh, he would necessarily be removed from his duties in Parliament, and, to that extent, precluded from exercising the influence for the exercise of which his post would have been created. The Irish Department, supported and guided as it was by various outside bodies, was something quite different from the Scottish Board. A further point that would arise would be whether any Minister appointed to assist the Secretary for Scotland should not have general jurisdiction, rather than a specialised agricultural sphere.

597. Mr. Munro stated that he was not, as at present advised, prepared to approve of the suggestion that a Scottish Under-Secretary for Agriculture should be appointed, as the adoption of such a proposal might give rise to difficulties, the relationship between the various departments being delicate. In his opinion it was too early to interfere with existing machinery, the Board of Agriculture having been so recently established and its normal work having been so interrupted by the War. If, however, a large permanent increase in its work took place, he might have to reconsider his opinion. He was aware that expression had been given by Scotch farmers to the view that a Minister was needed to devote his whole time to agriculture, but for the reasons he had given he did not consider the time had come to give effect to that view. It was true that urban and rural interests might conceivably conflict, and that in Scotland urban interests predominated, but he could not say that in the past agriculture had suffered from this cause. He reiterated the opinion he had previously expressed as to the advantage to the agricultural industry in Scotland of direct representation in the Cabinet.

598. As regards joint action on the part of the Ministerial Heads of the English and Scottish Boards, this was sufficiently secured by existing arrangements. The Scottish Office and the English Board were connected by telephone and were within two minutes' walk of each other. The officers of these departments and of the Scottish Board were in constant inter-communication. Their relations were cordial, and the three departments were working in close co-operation.

599. The Chairman having referred to the possible loss of weight in the National Councils through agriculture being divided into three separate branches, Mr. Munro acknowledged that there might be a divergence of opinion on the part of the heads of the several departments, but stated that the conditions prevailing in the three countries were so different that it would hardly be possible for the same Minister to do justice to all three. He gave as an instance the crofting system in Scotland, and said that an English Minister with the best will in the world would not fully appreciate its requirements. Even if each country had its own Board, and all were combined under one Minister, this objection would remain, while the loss of influence through having three heads could be removed by conference. Mr. Munro had not considered fully the advantages of having a National Council of Agriculture in Scotland, but if such a Council were established good might be done by conferences with similar bodies representing other parts of the United Kingdom. Although a joint Council made up of representatives of the several National Councils might have advantages, he inclined to the view that local aspirations would be better served by an annual joint conference of all the Councils. In reply to Mr. Ren, Mr. Munro stated that the idea of a Consultative Committee representing the three departments, which might meet periodically, had much to recommend it. Indeed he was all in favour of any policy which would secure close co-operation between the departments. He again expressed the opinion that a central Board for England and Scotland was outside the scope of practical politics and would not be tolerated by his Scottish colleagues in the House of Commons. He did not think it

possible, from a Parliamentary point of view, to contemplate a single ministerial head representing separate Boards of Agriculture in England and Scotland.

600. The suggestion of a separate Fisheries Department for England was interesting. In Scotland there had been a separate Fishery Department, under various names, for over 100 years, and this fact alone would make it impracticable to merge the Scottish fishery administration with the English. Apart from questions affecting national feeling, the Scottish fisheries were relatively of far greater importance to Scotland than were the English fisheries to England. The herring fishery on both the Scottish and English coasts was largely conducted by Scottish fishermen. Further, there had been in the past, and was likely to be in the future, considerable divergence of interests between England and Scotland in the matter of fisheries, and, from the Scottish point of view, it was essential that the Scottish standpoint should be separately maintained as in the case of Scottish agriculture. In theory, uniformity and concentration of administration could always be supported strongly in argument, but such an argument, if pressed to its logical conclusion, would entail the abolition, not merely of the various independent Scottish departments dealing with matters which were in England dealt with by parallel English departments, but also of the office of the Secretary for Scotland himself, which was only established in 1885.

601. The Chairman having raised the point whether, if the views of the English and Scottish fishery departments were inclined to conflict, it might not be better from the national point of view to combine the departments, Mr. Munro stated that for the reasons he had given he did not consider the suggestion to be feasible. The Scotch fisheries had developed satisfactorily under the separate Board, and the gradual diminution of the line fisheries was not due to neglect on the part of the department, but to the natural march of progress.

602. In conclusion Mr. Munro stated that he was satisfied with the work done by the Scottish Smallholders' Organisation and was prepared to continue the grant made towards it. He was not so fully acquainted with the work of the Scottish Agricultural Organisation Society, Limited.

Mr. E. B. SHINE and Mr. F. N. WEBB.

603. Mr. E. B. Shine, the head of the Live Stock Branch of the Board of Agriculture and Fisheries, and Mr. F. N. Webb, the Senior Superintending Inspector in that Branch, said that the purpose for which the Live Stock Scheme was initiated, the lines on which it was being carried out, and the results obtained up to date were given at some length in a memorandum which had been submitted by the Board to the Sub-Committee, and they did not, therefore, propose to repeat what was contained in that memorandum, but would merely add some further observations, and answer as far as they were able any questions put to them.

604. With regard to the Live Stock Scheme, they said that at the present time doubt existed among farmers and others concerned as to whether the scheme was to continue after five years, the period for which grants from the Development Fund were, in the first instance, stated to be made. In the opinion of the Board, the scheme would have to be continued for very many years if it was to secure the objects in view—i.e., the grading up of the commercial stock of the country, with a consequent increase and improvement in beef and milk production, and it would therefore appear desirable that the scheme should become one of the permanent activities and under the sole control of the Board, and be a charge on their Vote.

605. It was pointed out that the number of bulls subsidised under the scheme—i.e., 675—was very small compared with the very large number of bulls in the country. Unfortunately there were no statistics available as to the number of bulls in use in England and Wales, but for the service of the cows and heifers in milk or in calf which were returned in 1916 as being approximately 2,430,000, more than 37,000 bulls would be required, taking an average of 65 cows per bull, which was the number served by the bulls under the Live Stock Scheme. It would be seen from these figures, the witnesses said, what a small proportion of bulls were subsidised at the present time, and they thought the same remark equally true in regard to the number of boars and stallions, and as milk recording as a general practice might be said to be non-existent in the country it would be realised that the scope and effect of the Live Stock Scheme was really very small.

606. At the present time approximately £12,700 was granted from the Development Fund for the subsidy of bulls, £6,250 for horses, £1,350 for boars, and £1,500 for milk recording societies, and there was no doubt that larger sums than these could be utilised to good purpose in normal times, and especially for increasing the number of bull and milk recording societies. From experience gained it appeared that the amount of the grants made to a heavy horse and to a bull society was sufficient, but better results should follow if it was increased for a boar and a milk recording society, especially for the latter during its first year of operations. It was originally thought that it would suffice if grants were made to a society for five years, but it was evident from the working of the scheme that that period was not sufficiently long to enable a subsidised society to become educated to the advantages of using high-class sires, and it would probably be found expedient to continue grants to societies for a further period of five years, though perhaps on a reduced scale and with payments by results or in proportion to the value of the sires subsidised.

607. It was explained that for the purposes of administration of the scheme twelve Live Stock Officers were appointed by Agricultural Colleges in different parts of the country, and Mr. Shine and Mr. Webb thought that this expert staff could be utilised with advantage, if their numbers were increased, to deal with matters affecting the Live Stock industry outside the Live

Stock Scheme, and outside, of course, any question relating to diseases of animals. The present method under which Live Stock Officers were appointed and did their work had been proved by experience to be not altogether a satisfactory one from an administrative point of view, as it afforded insufficient control by the Board, provided no facilities for training men to take the place of those who were now supervising the operations of the scheme, and gave little, if any, opportunity for promotion. A Live Stock Officer was appointed by a college with the approval of the Board, and his salary was paid by the college to which he was attached, out of a grant made by the Board for the purpose. He did little or no college work, as practically his whole time was taken up in promoting the Live Stock Scheme for which the Board and not the College was responsible. He was also, to some extent, regarded as the servant of the Provincial and County Live Stock Committees which recommended the award of grants. He had, therefore, many masters to please, but his position would be far less difficult if he were on the Board's staff and subject only to their instructions. The present system, moreover, did not render the appointment very attractive, as it was purely a temporary one, with no prospect of permanent employment or of an increase in salary beyond £500 a year, a sum at which many of the Live Stock Officers were appointed as a commencing salary, and unless the system was amended so as to admit of these officers becoming eligible for permanent appointments on the Board's staff it would become increasingly difficult to secure the services of really good men. An efficient staff of practical, experienced and efficient Live Stock Officers was essential to deal in a satisfactory manner with the many Live Stock problems that awaited solution, the most important of which were perhaps:—(1) The elimination of low-grade mongrel sires which were responsible for the production of numbers of calves which were useless for rearing; (2) the general adoption, as far as possible, of the practice of keeping milk records, so as to ensure the elimination of unprofitable milkers, and the establishment of a register of dairy cows whose records had been certified by the Board; (3) the discontinuance of the wasteful system adopted by many town dairymen by which a large number of high-class dairy cows were slaughtered annually before their usefulness as milk producers had ceased. In reply to enquiries as to how it was proposed to effect the elimination of low grade mongrel sires, it was explained that it was hoped to do so by education and encouragement under the present Live Stock Scheme, and possibly also by legislation.

608. With regard to legislation, it was stated that the Board had not considered what, if any, action could be taken in this direction, but Mr. Skine and Mr. Webb thought that it might be possible to give the Board legislative power to require the castration or destruction of any bull, the use of which appeared to be harmful to stock-breeding. It was fully realised that it would be far more difficult to lay down any hard and fast rules as to the unsuitability of a bull than of a stallion, as it was possible in regard to the latter to prescribe a definite schedule of diseases, freedom from which would enable a certificate of soundness to be given. Similar procedure was not, however, possible in regard to bulls, and if the Board were given the power suggested it would have to be used with great discretion, and certainly only on reports of Officers of the Board who had such practical knowledge and experience of stock as would make their judgment generally accepted by breeders. In answer to enquiries as to the actual procedure to be adopted, it was pointed out that the matter had not been considered by the Board, and that the views expressed were purely personal ones. There was, however, no doubt that there were a large number of bulls used in the country which were quite unsuitable for getting stock fit to rear, either for milk or beef purposes, and if the destruction or castration of a few such bulls in each county was ordered by the Board it would probably have a very salutary effect, and discourage the keeping and use of mongrel bulls of really bad conformation, &c.

609. The experience gained by the Board in the administration of the Calf Orders clearly proved that the use of unsuitable bulls was very common among milk-selling dairy farmers, and the result was that the calves sired by such bulls were difficult to dispose of as they were quite unfit for rearing. In this connection it was pointed out that no difficulty had been experienced in disposing of calves got by subsidised bulls, and that the demand for them was greater than the supply. The usual practice of milk-selling farmers was to dispose of their calves at the first market after they were born, and it would require a considerable amount of education to teach such farmers that it would be to their interest and to the national advantage to use good sires and to keep their calves for at least two or three weeks, so as to enable them to be sent long distances, if necessary, into rearing districts. In this direction, and in arranging for co-operation between breeders and rearers, there appeared to be a wide field of useful work for the Board in the future.

610. With regard to the elimination of poor milkers from dairy herds it was pointed out that milk recording was almost a non-existent practice in England and Wales, that unless, and until it became more generally adopted there would continue to be kept a large number of cows which were more or less unprofitable animals, and that in the development and encouragement of milk recording there was, therefore, much scope for action by the Board.

611. Reference was made to the great difficulty experienced in forming milk-recording societies, due chiefly, it was thought, to the benefits of milk recording not being understood by owners of dairy herds, but the hope was expressed that milk recording would become more popular when the commercial value of milk record certificates was generally realised as the result of the enhanced prices obtained for certificated cows or their progeny.

612. Another factor that militated against the formation of societies was the expense to which members were put, namely, 2s. 6d. to 3s. 6d. a cow, which, though really a very small sum, was sufficient to deter dairy farmers from joining societies because they did not realise the benefits, commercial and otherwise, that would accrue to them from keeping milk records. Other

deterrents were shortage of labour and the absence on military service of the younger farmers and farmers' sons, who were more ready than the older generation to give a trial to new ideas in dairy farming.

613. Though the importance of taking butter tests was fully realised by the Board, dairy farmers who did not make butter seldom took such tests, as the prices paid to them for their milk did not increase according to the quality of the milk sold by them, and their chief concern was to produce milk which reached the legal standard.

614. Perhaps, the witnesses said, the most important result of milk recording was the opportunity it afforded to dairy farmers of noting and weeding out the unprofitable milkers, and they mentioned one society which in its second year of operations increased its milk production by 36,000 gallons, though the number of cows was only increased from 464 to 466. Another satisfactory result of the Scheme was that several members of milk-recording societies were now getting rid of their cheap, nondescript stock bulls, and were substituting pedigree sires that were bred from dams with good milking records, but much propagandist work would have to be done to induce dairy farmers to commence keeping records, and careful supervision and checking would be required to ensure the accuracy and reliability of these records. They added that the number of milk-recording societies under the Board's scheme was 23, that 13,400 cows were recorded last year, and that the average annual yield of cows which had been in herds for a full year was approximately 6,500 lbs., the maximum for any society being 7,340 lbs., and the minimum 5,800 lbs.

615. Mr. Shine and Mr. Webb, in referring to the practice of many town dairymen of selling for slaughter really high-class dairy cows as soon as they showed signs of becoming dry, said that the extent of this practice was not really known. It was, however, regarded by the Board as a very wasteful one, and should be stopped if it was found possible to do so. Before any useful action could be taken, however, it would be necessary to have an exhaustive enquiry made as to the extent of the practice, and consideration given to the practicability of substituting some other system which would enable the town dairymen to carry on their business without sacrificing the large number of good cows, which were now sent to the butcher before their period of usefulness as breeders and milk producers was at an end.

616. In conclusion, the witnesses said that if the Live Stock Scheme were amended and extended in certain directions and became a permanent activity of the Board, it would appear to afford the necessary machinery for increasing and improving the beef and milk supply of the country.

27th Day, 3rd July, 1917.

Mr. W. G. LOZSON.

617. Mr. Lobjoit is Chairman of the Market Garden, Fruit and Hop Growing Committee of the Central Chamber of Agriculture; he is also the Chairman of the Middlesex Agricultural Executive Committee. He began by explaining that intensive culture was a method of cultivating land designed to increase the productivity of the soil in a given area, by the expenditure of more capital and labour upon it. The chief examples of this in England and Wales were, he said, market gardening, fruit growing and hop growing, though intensive cultivation might be applied to agriculture generally. The advantages of this system of cultivation were that the produce of land farmed in this way was of greater value than that cultivated in the ordinary way, that extra labour was employed, and thus a wide range of auxiliary industries encouraged. He pointed out, however, that this form of cultivation entailed a long waiting period before the capital invested became remunerative. Present conditions, he said, were not favourable to the extension of intensive cultivation, as a man entering on land for the purpose of cultivating it in this way had no security that he would reap the benefit of the capital and time which he had expended on it. In stating this, however, he desired to explain to the Committee that he had no personal grievance to air on this point as the agreement for his own farm contained a clause that the "Market Gardener's Compensation Act" should apply to the holding. He wished to emphasise the fact that the Central Chamber of Agriculture had always agreed to the proposition that intensive culture was the use to which land should be put when suitable, as being the "best possible use," and of greater good to the community than if forced into the market for building, thus displacing much labour at present employed in such intensive cultivation." (Report of a Local Taxation Committee of the Central Chamber of Agriculture in November, 1909.) It was, however, practically impossible in the present state of affairs to obtain land for intensive culture, and he wanted, he said, to suggest ways in which the difficulties now existing might be removed.

618. The chief difficulty was that a man taking land for the purpose of market gardening, or other form of intensive cultivation, was obliged, on taking over the land from his landlord, to sign himself out of the protection of the Agricultural Holdings Act, *s.c.*, by formally agreeing not to cultivate the land intensively. Consequently if his landlord gave him notice to quit he would not receive adequate compensation for his expenditure. Almost every market gardening tenant who had entered upon his holding during the last ten years had had to sign himself out of the protection of the Act. There was a growing feeling of uneasiness, he said, with regard to this injustice.

619. To overcome these difficulties Mr. Lobjoit proposed, first of all, that a Tribunal should be set up with power to decide, on reference from the Board of Agriculture or the County

Council, whether any land should be cultivated as market garden. Secondly, he proposed that this Tribunal should be empowered to enforce that land adjudged to be suitable for market gardening should be so let, and, on application from either landlord or tenant, to fix the rent. Thirdly, that all land cultivated as market garden since 1909 should, on application be brought under the purview of this Tribunal, and that they should have power to amend any clause in an agreement for the tenancy of market garden land which deprived the tenant of the right to claim compensation, as provided in Clause 42 of the Agricultural Holdings Act, and that in these cases they should, on application from the landlord, have power to revise the rent. Lastly, he proposed that provision should be made for the landlord of any land that had been let under an agreement that it might be used as market garden, to have the option of requiring an outgoing tenant, who had himself given the notice to terminate the tenancy, or refused a renewal of the tenancy on terms which the Tribunal considered to be reasonable, to find an incoming tenant who would pay the compensation. If, however, the landlord should refuse the outgoing tenant's nominee he should have to pay the compensation himself.

620. Mr. Lobjoit further suggested as another way to meet the difficulties with regard to intensive cultivation, a system of insurance. He suggested that an agreed average maximum sum per acre for compensation to the tenant should be fixed; the landlord would be able to insure by paying an annual premium, to which the tenant would contribute in the rent. The tenancy would have to be a lease for a fixed number of years.

621. Speaking of intensive cultivation from the landlord's point of view, the witness said that he advocated a plan of co-operation between landlord and tenant, by means of the scheme of insurance already mentioned, and this he felt might be arrived at if the tenant felt secure with regard to the investment of his capital in the land which he rented. Mr. Lobjoit did not agree with the principle of the tenant buying his land from his landlord, as he thought the tying up of a tenant's capital in this way would hamper him in his efforts to improve his land. The landlord, on the other hand, would lose nothing from his land being devoted to intensive cultivation, provided compensation for improvements paid to an outgoing tenant was never more than their value to an incoming tenant. That this had not invariably been so in the past was due to the want of knowledge of intensive cultivation on the part of the valuers engaged.

622. With regard to a more general system of co-operation between small-holders, Mr. Lobjoit was less hopeful. He said that the Agricultural Organisation Society and he himself had tried to form co-operative societies in his county, but had failed to do so; the chief difficulty which they had encountered being a feeling on the part of small-holders that if they amalgamated with others, their affairs would be known by every one else in the neighbourhood.

623. Speaking of labour, Mr. Lobjoit said that in normal times there was no difficulty in the supply of this for intensively cultivated farms, as they were usually situated near market towns. He thought, further, that where these holdings started the labour generally followed.

624. In answer to questions from members, Mr. Lobjoit agreed that the difficulty with the present legislation was that, unless a landowner insisted on a tenant contracting himself out of the Act, he might find himself compelled to pay compensation for improvements to an outgoing tenant at more than their value to an incoming tenant. This position was obviously unsatisfactory, and for this reason the witness preferred that the Evesham Custom should be substituted for the Agricultural Holdings Act.

625. On being asked whether he considered that there was scope for an extension of this kind of cultivation, Mr. Lobjoit replied that he thought there was undoubtedly an opening for growers of fruit and the commoner kinds of vegetables, but that the production of luxury crops could easily be overdone. Dr. Douglas pointed out that this country was practically self-supporting in the matter of potato-growing, and that there was apparently no room for extension in this respect, or indeed in the production of vegetables generally. Mr. Lobjoit, however, disagreed with this view, and in reply said that despite the difficulties attendant on the intensive system of cultivation, it was steadily increasing, and the needs of the time required that it should be widely practised. Moreover, while there always had been gluts of potatoes and vegetables at intervals, owing to weather conditions or to the changes in the public tastes, he thought that the introduction of war allotments would permanently increase the public demand for vegetables. He went on to give a list of districts suitable for intensive cultivation, which showed that a very large proportion of England was suited to this form of culture, more especially in the south and in the neighbourhood of watering places. On being questioned as to the rent commanded by this kind of land, Mr. Lobjoit replied that it varied according to the locality, but that the average was from £3 to £7 per acre.

MR. W. COLTHUP.

626. Mr. Colthup said that he was prepared to give evidence on the value to this country of intensive cultivation, and the necessity of its extension. He gave figures showing how much greater was the amount expended on wages by a man farming on the intensive system than that expended by one who devoted the main part of his land to grass. He added that if intensive cultivation were to spread largely, thereby increasing the amount of labour on the land, restrictions must be put upon the present imports of the country. He quoted onions as an example of a crop which, to prove successful, had to be grown on land in a very high state of cultivation, the imports of which were, at present, enormous. He gave figures showing the large amount of produce imported by the United Kingdom, proving the desirability of increasing intensive cultivation, and thereby increasing our power of self-support.

627. In Mr. Colthup's opinion a system of scientific instruction was needed for the farmers of the future. He thought that boys leaving school should go straight to practical farmers for two years, and from there to agricultural colleges where they would receive scientific instruction.

628. The witness went on to point out how detrimental, in his opinion, to increased food production was the present sense of insecurity felt by those farming on the intensive system with regard to their tenure of land. While explaining that he had no personal grievance, Mr. Colthup said that much money might be brought on to the land by the sons of commercial men taking up intensive cultivation, were it not for the fact that they had no security of tenure. As an example of the evils resulting from this insecurity, Mr. Colthup said that if a tenant planted fruit, and erected barns, cottages, &c., on the land that he rented, and on leaving found that the incoming tenant refused to take them over from him, he was left in rather a hard position, as he had probably raised the value of the land by their erection, but gained no return for his expense.

629. Mr. Colthup here said that he wished to suggest for the Committee's consideration the system of land tenure (with certain modifications) known as the Evesham Custom. He proceeded to detail the advantages of this custom, a copy of an agreement under which he had already circulated to the Committee.

630. In the first place, he said, it would be an incentive to tenants to equip and improve their land, as an outgoing tenant was in a position to hand over the land as it stood, with all its fruit orchards and buildings, as a condition of transfer to the incoming tenant. In the second place, a man with security of tenure would improve his soil, and indeed must make the best of it or else lose all the capital he had expended on it. The Evesham Custom also afforded more protection to the landlord than he enjoyed under the Agricultural Holdings Act. He pointed out that one important advantage of the Custom was the fact that changes of tenancy could take place at any time of the year. He said he thought that while the Evesham Custom was imperfect, yet it had the benefits arising from ownership without the disadvantages.

631. The witness said there were instances where the conditions of the lease of farms definitely stipulated that the tenant, on the expiration of his lease, may cut down, remove or destroy the valuable fruit orchards which he had planted and pointed out that there could be no more destructive policy than to destroy national wealth because the landowner will neither take it by valuation himself nor allow the outgoing tenant to sell such permanent improvement to an incoming tenant.

632. In conclusion Mr. Colthup spoke of the necessity for producing a substitute for potash in this country. In the past, he said, the country had relied entirely upon German potash for potato growing, and he considered that if this fertiliser were really vital to the growing of potatoes, no efforts should be spared in making experiments which might produce substitutes. If the Board of Agriculture could in any way do so, they should make exhaustive experiments which would convince farmers of its value for growing potatoes. Lord Selborne replied that this was already being done.

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